Liebert

SITE MONITORING AND SERVICES

AC8

USER MANUAL

EMERSON
Network Power

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1.0 INTRODUCTION

The Liebert AC8 is ideal for coordinated control of systems with redundant equipment, such as multiple environmental units or pumps. When the AC8 controller detects an alarm in an operating device, the AC8 enables a standby device and controls the device in alarm as configured, either leaving that device operating or disabling it.

The AC8 controller can also balance usage of devices by rotating units through Operating and Standby modes according to a user-defined schedule. This helps keep redundant equipment operating efficiently and only when needed. The AC8 can perform routine testing of standby devices and alert personnel if a standby device fails an operating test and requires attention.

The staging feature permits standby devices to be turned on or off when a sensor detects specified levels. For example, the AC8 might be configured to turn on a fan when the temperature reaches 75°F, then turn on a second fan at 80°F. When the temperature falls below 80°F, the second fan is turned off; when it drops below 75°F, the first fan is turned off.

Another capability of the AC8 is monitoring the status of connected devices and keeping personnel apprised through local alarming. The AC8 employs local alarming and remote paging services to keep personnel on-site and at remote locations apprised of the status of equipment.

The AC8 controller can interface with anything that closes an electrical contact. To improve process efficiency and troubleshooting, the controller tracks data in three types of logs: alarm, event and trend. The AC8 has a local LCD interface and a remote dial-up interface.

When an alarm condition arises, the AC8 displays alarm information, sounds an audible alarm, changes the state of the common alarm relay and turns connected devices on or off according to user configuration. If configured, the controller also sends pager notifications. See **1.6 - Typical Configuration** for a more detailed example.

1.1 Methods of Viewing and Configuring the AC8

The AC8 features access through two interfaces that allow users to configure the unit, silence alarms, back up logs, and perform many other functions to keep a large or small operation running smoothly and safely.

- **LCD**—liquid crystal display on the front of the panel
- **Service Terminal Interface**—accessible via computer connected directly through an RS232 port or remotely through the AC8's onboard modem

These interfaces permit easy access and configuration of the AC8, allowing users to view data, silence alarms and have full access to information stored in the controller, including logs of alarms and events.

One more interface—Liebert's SiteScan Web enterprise monitoring system—is primarily for monitoring, though SiteScan also provides some configuration functions.

1.2 Data Logs

The three types of data logs—alarm history, event history and trend data of analog sensor readings—can be viewed on the LCD on the front of the AC8 and downloaded through onboard communications ports.

1.3 Transformer Module

A Transformer Module converts 115VAC or 230VAC to 24VAC.

1.4 Available Alarms

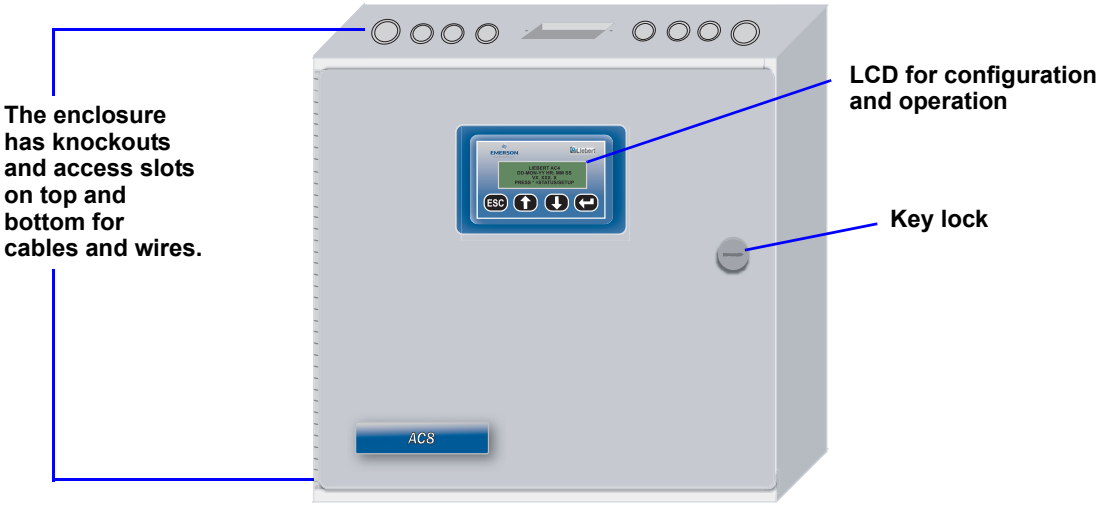
The alarms available with the AC8 are:

- Discrete input alarm (for each digital input)
- High setpoint
- Low setpoint
- Loss of power
- Low battery
- Check battery
- Battery unplugged
- Internal modem fault
- No standby available
- Standby device failed
- No restart available
- Emergency power alarm

1.5 Outside Enclosure Overview

The AC8's controller board comes in an enclosure that is 2-3/4" deep and has a built-in liquid crystal display (LCD) and a key lock, as shown in **Figure 1**. The enclosure is made of metal to accommodate secure conduit fittings and protect components against environmental debris.

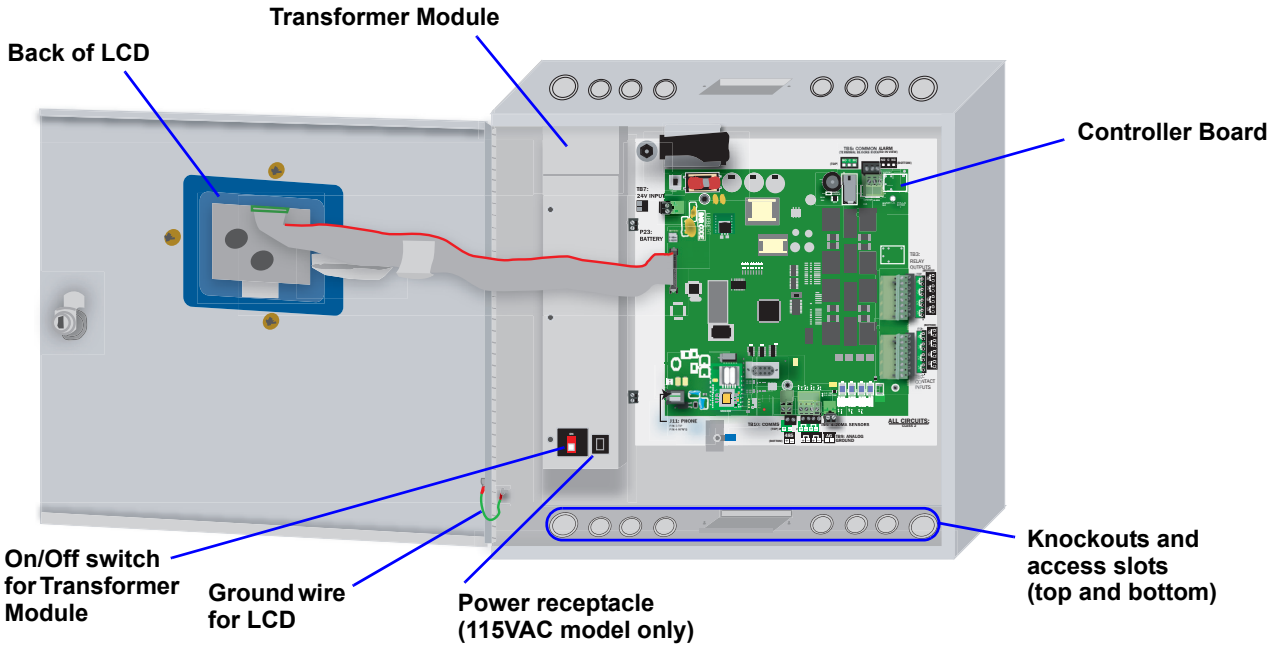
Figure 1 AC8 enclosure—external features


The enclosure has knockouts and access slots on top and bottom for cables and wires.
LCD for configuration and operation
Key lock
ESC
AC8

The enclosure houses the controller board and Transformer Module, as shown in **Figure 2**.

The enclosure must be secured to a wall, either flush-mounted or recessed in the wall, as described in **2.0 - Installation**. Knockouts and access slots on the top and bottom allow easy connection of wires and cables (see **3.0 - Wiring and Connections**) with either mounting type.

Figure 2 AC8 enclosure—internal features

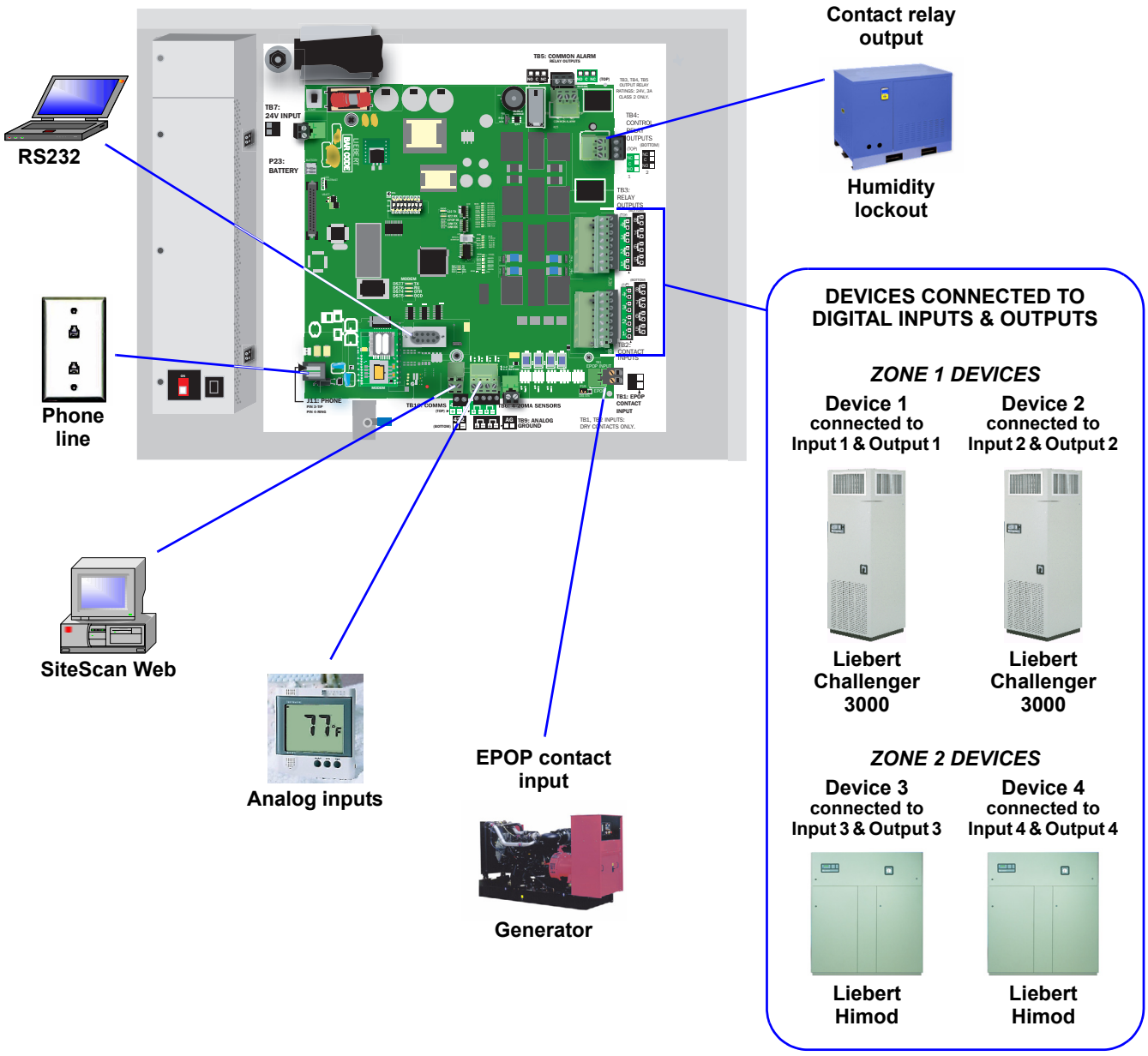

Transformer Module
Back of LCD
Controller Board
On/Off switch for Transformer Module
Ground wire for LCD
Power receptacle (115VAC model only)
Knockouts and access slots (top and bottom)

1.6 Typical Configuration

Figure 3 shows an example of external devices connected to the AC8's controller board. Up to eight devices may be connected to the eight digital inputs and eight digital outputs. There may be up to four analog sensors connected to the analog inputs, and up to two devices connected to the control relay outputs. The EPOP connection allows for one device, possibly a UPS or generator input actuated during a power failure.

Remote access is available via SiteScan Web and through the modem, which enables pager notifications and use of the Service Terminal Interface. A computer may be connected to the RS232 port, providing access to the features of the Service Terminal Interface.

Figure 3 Typical Configuration



1.7 Controller Board Overview

The AC8's controller board has connectors for eight digital inputs, four analog inputs, eight digital outputs, two control relay outputs and an EPOP contact input, as shown below. The board comes complete with light emitting diodes (LEDs) to display the status of connected devices, a battery pack for short-term backup, communications ports, power connections and other features necessary to control your operation.

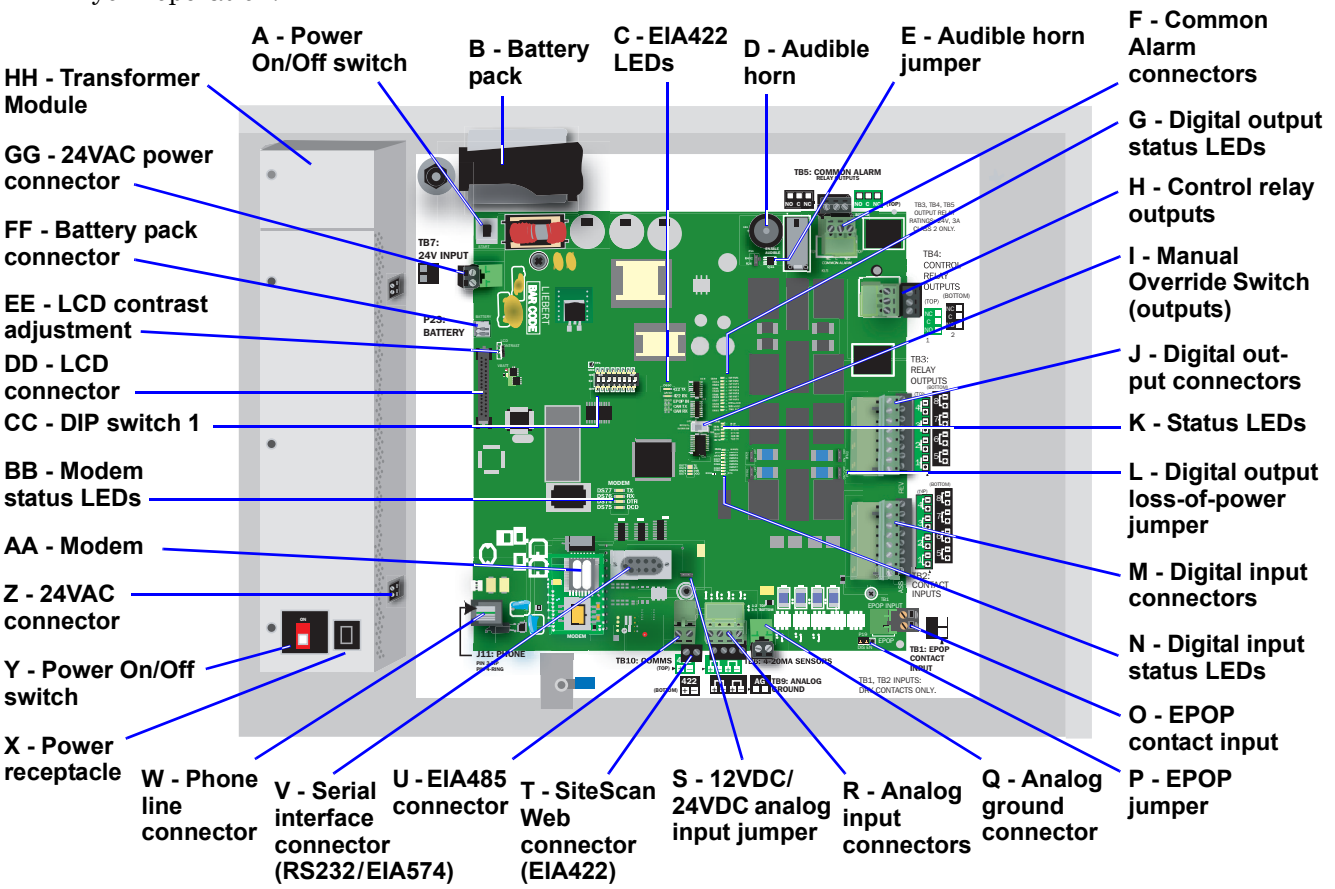

A - Power On/Off switch
B - Battery pack
C - EIA422 LEDs
D - Audible horn
E - Audible horn jumper
F - Common Alarm connectors
G - Digital output status LEDs
H - Control relay outputs
I - Manual Override Switch (outputs)
J - Digital output connectors
K - Status LEDs
L - Digital output loss-of-power jumper
M - Digital input connectors
N - Digital input status LEDs
O - EPOP contact input
P - EPOP jumper
Q - Analog ground connector
R - Analog input connectors
S - 12VDC/ 24VDC analog input jumper
T - SiteScan Web connector (EIA422)
U - EIA485 connector
V - Serial interface connector (RS232/EIA574)
W - Phone line connector
X - Power receptacle
Y - Power On/Off switch
Z - 24VAC connector
AA - Modem
BB - Modem status LEDs
CC - DIP switch 1
DD - LCD connector
EE - LCD contrast adjustment
FF - Battery pack connector
GG - 24VAC power connector
HH - Transformer Module

Table 1 Controller board components

Item	Description	For more information, see:
A - Power On/Off switch	Power switch for the controller board. When switched off, the battery pack is disabled.	2.4: Connect Power to the AC8
B - Battery pack	Provides battery backup during a power loss to maintain normal operation of the panel for a minimum of 10 minutes. The analog inputs will not be functional during a power loss (P/N 133455P1).	2.4.2: Connecting the Battery Pack 7.9.4: Connect Battery
C - EIA422 LEDs	Indicates the connection status between the AC8 and SiteScan Web.	1.8: LED Indicators
D - Audible horn	Provides audible notification when an alarm occurs.	N/A
E - Audible horn jumper	Jumper to disable the audible horn (factory default is enabled).	N/A
F - Common Alarm connectors	The two common alarm connections are used to connect to a secondary warning device such as a horn, light or Building Management System (BMS). When an alarm is present, the contacts close and the external warning device is activated/notified. The common alarm contacts may be configured to be reset with the Silence button/command.	3.0: Wiring and Connections 3.4: Connecting Common Alarm Outputs 7.4: Setup System - Setup Common Alarm
G - Digital output status LEDs	Each output has an LED to indicate its status: ON/OFF (energized/de-energized).	1.8: LED Indicators
H - Control relay outputs	Each of the two output connections is a two-state point: ON/OFF (energized/de-energized). Digital and analog inputs may be mapped to either or both relays to trigger change in state. An example of a control relay output point is a humidity lock-out.	3.0: Wiring and Connections 3.2.4: Connecting Control Relay Outputs 5.9: View Control Status 7.11: Setup System - Setup I/O Matrix
I - Manual Override Switch (outputs)	Placing the switch in the ON position will turn ON, or energize, all eight outputs simultaneously. This switch removes all automatic output control from the AC8. The factory default is OFF (outputs controlled by programming).	7.12: Override Output

Table 1 Controller board components *(continued)*

Item	Description	For more information, see:
J - Digital output connectors	Each of the eight output connections is a two-state point: ON/OFF (energized/de-energized). An example of a field digital output point is an air unit On/Off control circuit.	3.0: Wiring and Connections 3.2.2: Connecting Digital Outputs 5.6: View Output Status 7.7: Setup System - Setup Outputs
K - Status LEDs	Indicates the operational status of the controller board.	1.8: LED Indicators
L - Digital output loss-of-power jumper	One of eight output jumpers. Each digital output has a jumper to set the *fail-safe* position of the output point when power fails. The OFF position makes the contact Normally Open (factory default). The ON position makes the contact Normally Closed. **Note:** The jumper position has no effect on the contact when the AC8 has power.	3.2.3: Setting the Digital Output Jumpers 7.7.5: Configure Output for Loss of Power (“Fail-Safe”)
M - Digital input connectors	Each of the eight input connections is a two-state point: ON/OFF (energized/de-energized). An example of a field digital input point is a common alarm contact on an air unit.	3.0: Wiring and Connections 3.2.1: Connecting Digital Inputs 5.5: View Input Status 7.3: Setup System - Setup Inputs
N - Digital input status LEDs	Each input has an LED to indicate its status: ON/OFF (energized/de-energized).	1.8: LED Indicators
O - EPOP contact input	The emergency power operation (EPOP) input connection is a two-state point: ON/OFF (energized/de-energized). An example of an EPOP input point is a UPS or a generator.	3.0: Wiring and Connections 3.2.5: Connecting the Emergency Power Operation (EPOP) Input
P - EPOP jumper	Jumper to enable or disable emergency power operation (EPOP). Factory default is disabled.	3.2.6: Setting the EPOP Jumper
Q - Analog ground connector	Connection for an externally powered analog sensor that needs a reference to ground.	3.3.2: Connecting the Analog Ground
R - Analog input connectors	Each of the four input connections accepts a 4/20 mA signal. An example of a field analog input point is a temperature sensor.	3.0: Wiring and Connections 3.3: Connecting Analog Inputs 5.5: View Input Status 7.5: Setup System - Setup Sensor
S - 12VDC/24VDC analog input jumper	Jumper to select voltage supplied for two-wire analog sensors. The jumper supplies all four analog input connectors with the same voltage. Factory default is 24VDC.	3.3.1: Setting the 12VDC/24VDC Analog Power Jumper
T - SiteScan Web connector (EIA422)	Connection to monitor AC8 from Liebert’s SiteScan Web graphical monitoring package.	3.0: Wiring and Connections 3.5: EIA422 SiteScan Web Connector
U - EIA485 connector	Not presently used	N/A
V - Serial interface connector (RS232/ EIA574)	Connection for laptop or video terminal. Used for configuration and monitoring using the Service Terminal Interface. Requires a null modem cable for connectivity (P/N 201258P1).	3.6.1: RS232 Connector A.2: Connecting to the Service Terminal Interface
W - Phone line connector	Connection for phone line. Used for pager notifications, service phone number, and configuration and monitoring using the Service Terminal Interface. Requires an RJ11 connector.	3.6.2: Phone Line Connector 7.8: Setup System - Setup Modem & Pagers 7.9.6: Setup Serv Ph Num - Enter Phone Number A.2: Connecting to the Service Terminal Interface
X - Power receptacle (Transformer Module)	115VAC power receptacle to power laptop during configuration and diagnostics. Receptacle not available on 230VAC Transformer Module.	2.4.1: Termination and Mounting 3.0: Wiring and Connections
Y - Power On/Off switch (Transformer Module)	Power switch to turn power On/Off to both Transformer Module 24VAC connectors and power receptacle.	2.4.1: Termination and Mounting 3.0: Wiring and Connections
Z - 24VAC connector (Transformer Module)	One of the two 24VAC connectors for power (the second is also on the right side of the Transformer Module near the top). Each connector is rated for 40VA.	2.4.1: Termination and Mounting 3.0: Wiring and Connections
AA - Modem	On-board modem with 9600 baud rate.	7.8: Setup System - Setup Modem & Pagers
BB - Modem status LEDs	Indicates the operational status of the modem.	1.8: LED Indicators
CC - DIP switch 1	DIP switch used for resetting password to default.	7.9.1: Change Password
DD - LCD connector	Connection for the LCD on the enclosure door.	N/A
EE - LCD contrast adjustment	Adjustment contrast for the LCD on the enclosure door.	N/A
FF - Battery pack connector	Connection for battery pack lead.	2.4.2: Connecting the Battery Pack
GG - 24VAC power connector	Power connection for the controller. Requires 24VAC.	2.4: Connect Power to the AC8
HH - Transformer Module	Transformer Module used to convert 115VAC or 230VAC to 24VAC.	2.4.1: Termination and Mounting

1.8 LED Indicators

The AC8's controller board has LED indicators that show the status of inputs, outputs and the common alarm, as well as the modem, SiteScan Web and EPOP connections.

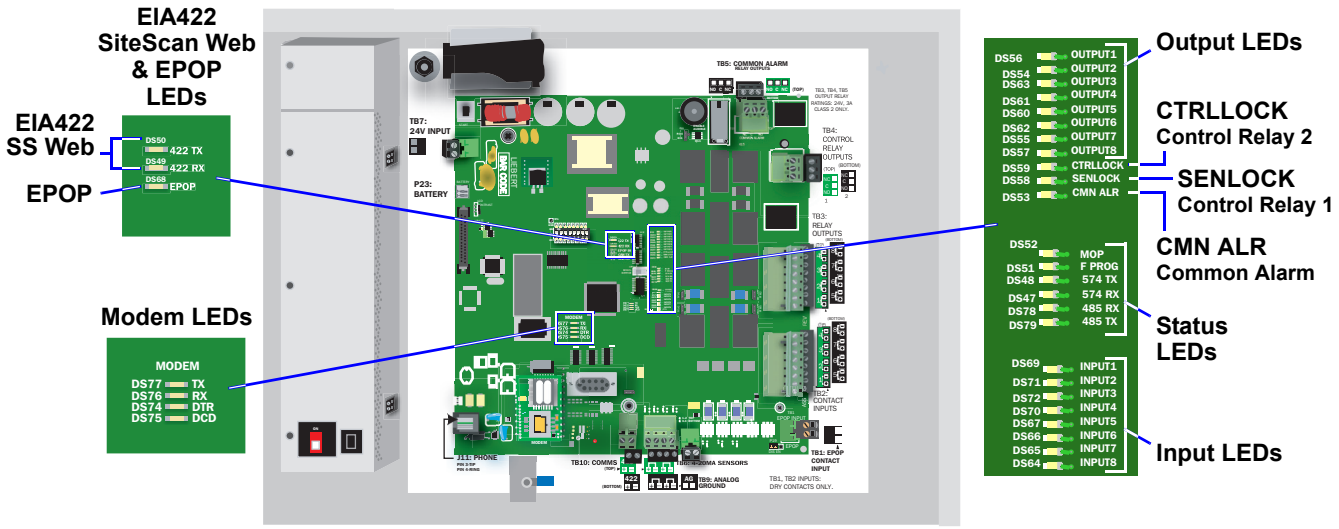


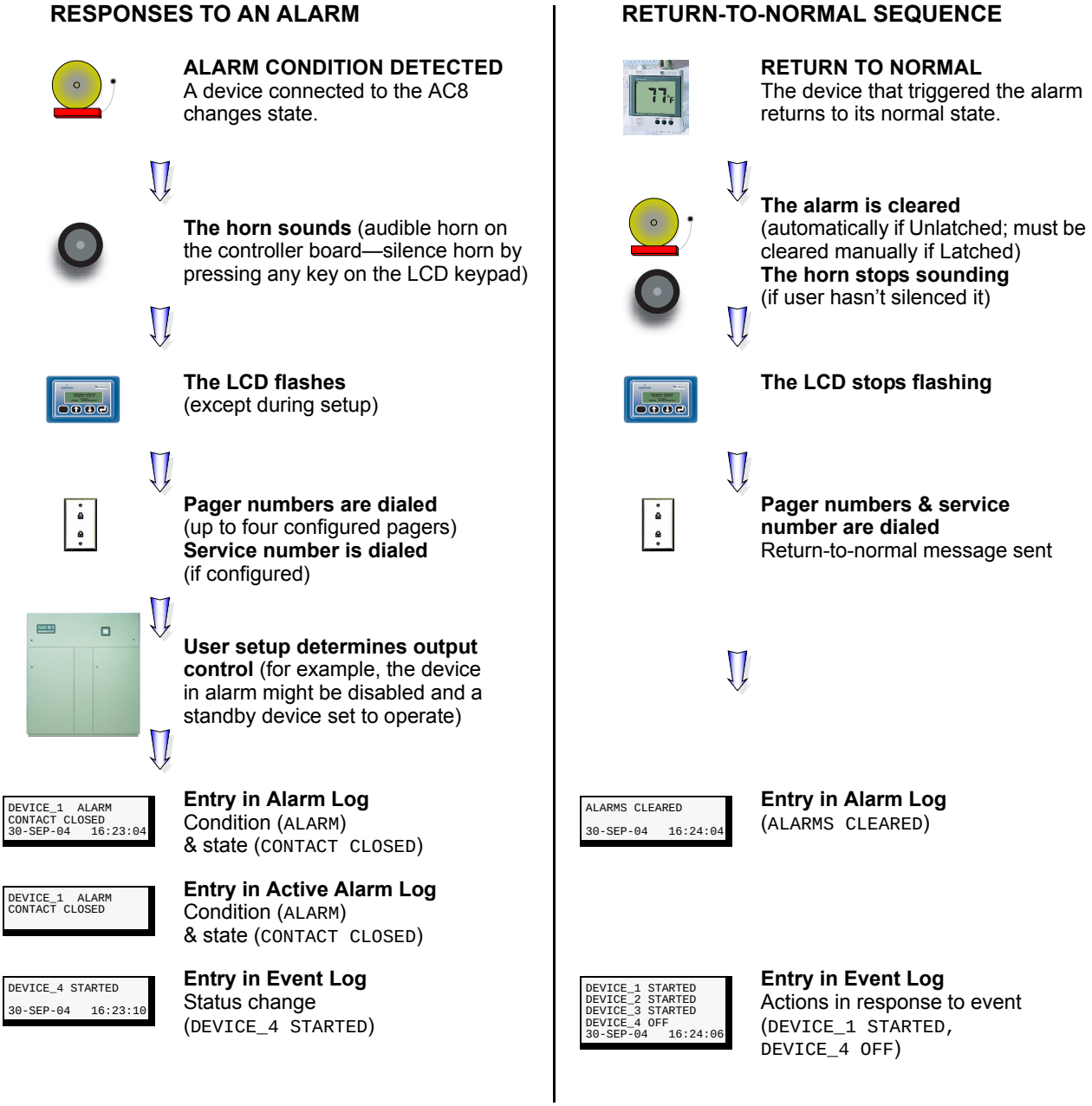
Table 2 LED indicators summary

LED Type	LED	Color	Description
EIA422 LEDs	422 TX	Green	AC8 is transmitting information over the EIA422 port
	422 RX	Green	AC8 is receiving information over the EIA422 port
EPOP LED	EPOP IN	Red	Indicates Emergency Power Operation is open or in alarm
Modem LEDs	TX	Green	AC8 is transmitting information via the modem
	RX	Green	AC8 is receiving information via the modem
	DTR	Green	Indicates data terminal is ready (DTR)—lights up when modem is dialing
	DCD	Green	Indicates data carrier is detected (DCD)—lights up when modem has connection
Output LEDs	OUTPUT1	Green	Indicates output is ON or energized
	OUTPUT2	Green	Indicates output is ON or energized
	OUTPUT3	Green	Indicates output is ON or energized
	OUTPUT4	Green	Indicates output is ON or energized
	OUTPUT5	Green	Indicates output is ON or energized
	OUTPUT6	Green	Indicates output is ON or energized
	OUTPUT7	Green	Indicates output is ON or energized
	OUTPUT8	Green	Indicates output is ON or energized
	CTRLLOCK	Green	Indicates Control Relay 2 is ON or energized
	SENLOCK	Green	Indicates Control Relay 1 is ON or energized
	CMN ALR	Green	Indicates Common Alarm Relay is ON or energized
Status LEDs	MOP	Green	Indicates the microprocessor is operating properly (MOP)—must be on before AC8 will function
	FPROG	Green	Indicates firmware is being upgraded—lights up during upgrade process
	574 TX or 232 TX	Green	AC8 is transmitting information via the RS232 port
	574 RX or 232 RX	Green	AC8 is receiving information via the RS232 port
	485 RX	Green	Not used
	485 TX	Green	Not used
Input LEDs	INPUT1	Red	Indicates input is ON or energized
	INPUT2	Red	Indicates input is ON or energized
	INPUT3	Red	Indicates input is ON or energized
	INPUT4	Red	Indicates input is ON or energized
	INPUT5	Red	Indicates input is ON or energized
	INPUT6	Red	Indicates input is ON or energized
	INPUT7	Red	Indicates input is ON or energized
	INPUT8	Red	Indicates input is ON or energized

1.9 Typical Sequence

Figure 4 shows a typical sequence of how the AC8 functions after detecting a change in a monitored device. Many responses depend on configuration settings. This example shows what happens when a digital input changes state—assuming the input is defined as alarmable—and when the condition returns to normal.

Figure 4 Example of typical sequence


RESPONSES TO AN ALARM
ALARM CONDITION DETECTED
A device connected to the AC8 changes state.
The horn sounds (audible horn on the controller board—silence horn by pressing any key on the LCD keypad)
The LCD flashes
(except during setup)
Pager numbers are dialed
(up to four configured pagers)
Service number is dialed
(if configured)
User setup determines output control (for example, the device in alarm might be disabled and a standby device set to operate)
DEVICE_1 ALARM
CONTACT CLOSED
30-SEP-04 16:23:04
Entry in Alarm Log
Condition (ALARM)
& state (CONTACT CLOSED)
DEVICE_1 ALARM
CONTACT CLOSED
Entry in Active Alarm Log
Condition (ALARM)
& state (CONTACT CLOSED)
DEVICE_4 STARTED
30-SEP-04 16:23:10
Entry in Event Log
Status change
(DEVICE_4 STARTED)
RETURN-TO-NORMAL SEQUENCE
RETURN TO NORMAL
The device that triggered the alarm returns to its normal state.
The alarm is cleared
(automatically if Unlatched; must be cleared manually if Latched)
The horn stops sounding
(if user hasn't silenced it)
The LCD stops flashing
Pager numbers & service number are dialed
Return-to-normal message sent
ALARMS CLEARED
30-SEP-04 16:24:04
Entry in Alarm Log
(ALARMS CLEARED)
DEVICE_1 STARTED
DEVICE_2 STARTED
DEVICE_3 STARTED
DEVICE_4 OFF
30-SEP-04 16:24:06
Entry in Event Log
Actions in response to event
(DEVICE_1 STARTED, DEVICE_4 OFF)

2.0 INSTALLATION

This section provides instructions for installing, mounting and connecting power to the AC8.

2.1 Installation Considerations

The AC8 must be installed indoors and may be mounted on the surface of a wall or flush-mounted, depending on the user's application, the location of equipment and sensors to be monitored and the type of wall the unit will be mounted on.

The AC8 should be mounted where it can be easily accessed. On-site personnel would access the unit through the LCD on its front cover, service terminal connected to the RS232 port or through SiteScan. For off-site monitoring, the AC8 should be placed near communications means such as a telephone line connection that would permit remote access.

In addition to the communications connections, the site also must have electrical service and must permit connecting the unit's eight digital inputs, eight digital outputs and four analog inputs.

The wall material must be capable of supporting the weight of the AC8: see **8.0 - Specifications**.

NOTE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

2.1.1 Unpacking and Preliminary Inspection

- Before unpacking the AC8, inspect the shipping carton for damage or signs of mishandling, such as gashes or holes in the carton or severely flattened corners.
- Open the shipping crates carefully. Use care to avoid puncturing the container with sharp objects that might damage the contents.
- Inspect the AC8 and all included components for damage.
- If any damage from shipping or mishandling is observed, immediately file a damage claim with the shipping agency and forward a copy to:

  Liebert Corporation
  1050 Dearborn Drive
  P.O. Box 29186
  Columbus, OH 43229

Packing Contents

Table 3 Packing manifest

Standard Components
• AC8 controller board in enclosure • User Manual • Keys (2) to panel door lock • Backup Battery - installed in unit (not connected or charged) • RS232 Configuration Cable

2.2 Surface-Mounting the AC8

NOTE

Removing the conduit knockouts before mounting the AC8 on the wall will ease installation and prevent strain on the mounting hardware and wall. It is imperative to remove the knockouts if the unit is to be flush-mounted.

After determining where to place the unit, check to ensure that you have all the hardware required to install the panel on the surface of a wall. Obtain the needed tools and material.

Required tools

- Electric drill (if surface is too hard to drive screws without pilot holes)
- Screwdriver
- Marker to denote layout of holes
- Four screws, each #10

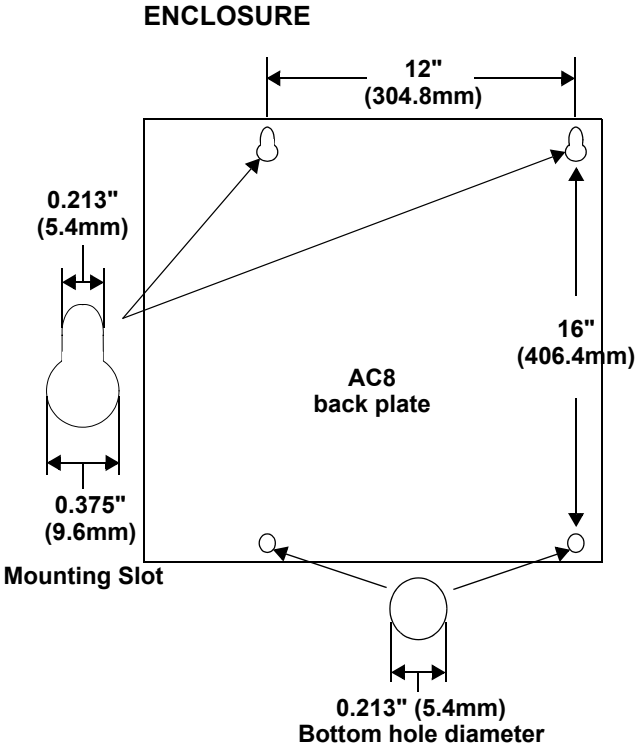
2.2.1 Mounting the Panel

CAUTION

Check building plans and other relevant documents to determine whether mounting the AC8 at the selected location might cause cutting or otherwise damaging electrical or communication wiring or pipes.

1. Mark the wall for mounting holes, using the back of the unit as a template (see **Figure 5**).
2. Drill holes, if required, to install the four #10 screws that will secure the AC8 to the wall. Clean up the debris.
3. If the wall material is not strong enough to hold the screws securely, use wall anchors.
4. Install the top two screws—the screw heads must be small enough to slip through the larger, bottom portion of the pear-shaped mounting slot in the AC8 (see inset in **Figure 5**). The screws must also be large enough to extend over the edges of the top of the mounting slot.
5. Hang the AC8 on the screws, letting the panel slip down until the screws are in the smaller, upper portion of the slot.
6. Tighten the screws until they are snug.
7. Insert the remaining two screws in the bottom holes on the back of the panel and tighten.

Figure 5 Mounting dimensions



2.3 Flush-Mounting the AC8

NOTE

Removing the conduit knockouts before mounting the AC8 on the wall will ease installation and prevent strain on the mounting hardware and wall. It is imperative to remove the knockouts if the unit is to be flush-mounted.

The rectangular access doors on the top and bottom of the AC8 must be reversed so they slide the opposite direction. Leaving the doors as shipped from the factory prevents them from being opened when the panel is flush mounted in a wall.

The AC8 may be flush-mounted according to company practices—either with screws through the sides of the panel into wall supports or with hanging hardware that attaches to the back of the panel. After determining how and where to place the unit, check to ensure that you have all the hardware required to install the panel in the wall. Obtain the needed tools.

Required tools

- Saw
- Electric drill
- Screwdriver
- Marker to denote layout of the hole to accommodate the AC8
- Mounting hardware

2.3.1 Mounting the Panel

CAUTION

Check building plans and other relevant documents to determine whether mounting the AC8 at the selected location might cause cutting or otherwise damaging electrical or communication wiring or pipes.

1. Mark the wall for the cutout to accommodate the panel, using the back of the unit as a template.
2. Drill a pilot hole for the saw blade, if required.
3. Use the saw to cut out the marked section of the wall (if not new construction).
4. Rest the AC8 in the wall and mark where mounting screws will be inserted into the wall studs or other support member.
5. Remove the panel and drill the holes for the mounting screws or wall anchors. Clean up the debris.
6. Reverse the slide direction of the rectangular access doors on the top and bottom of the AC8. Leaving the doors as shipped from the factory prevents them from being opened when the panel is flush mounted in a wall.
7. Attach any field-supplied mounting hardware.
8. Reinsert the assembly into the wall.
9. Insert and tighten the screws or wall anchors.

2.4 Connect Power to the AC8

The AC8 must be supplied with 115VAC or 230VAC; the power supplied must match the rating of the unit's Transformer Module. For information, consult your local dealer, Liebert representative or the Liebert Worldwide Support Group.

The AC8 must be installed on a branch circuit protected by a certified 15A overcurrent device.

WARNING

Check that power is removed from wires prior to installation.

CAUTION

The AC8 is designed for use on properly grounded (earthed) 115VAC or 230VAC power, 60Hz or 50Hz. The ground wire for the power lead must be wired to the earth ground terminal (stud located next to the 24VAC terminal block).

This equipment is intended to be installed by a qualified and certified electrician who must review and approve customer supplied wiring and circuit breakers, verify correct input and grounded (earthed) connections to ensure compliance with technical standards and national and local electrical codes.

WARNING

Be sure that the Power On/Off switch is set to OFF before installing any wiring to this unit. The switch is in the top left corner of the unit, just below the battery pack.

2.4.1 Termination and Mounting

WARNING

Be sure that the Power On/Off switch is set to OFF before installing any wiring to this unit. The switch is at the bottom of the unit.

Input Power Connections

To connect electrical power to the Transformer Module:

1. Install electrical wiring from utility power to the Transformer Module.
2. Use copper wires only; proper wiring to use for power is 14/2 AWG copper wire with ground.
3. **For the TM230 only:** strip wires 3/8" (9.6mm).
   Note: For the TM115, wires are pre-stripped 0.4" (10.2mm) at the factory.
4. Connect the wiring as follows:

TM115	TM230	Connection Type
White wire	Neutral (L2)	Neutral
Black wire	Line (L1)	Power (Line)
Green wire	Ground lead	Ground

5. Secure the incoming electrical service wires to the TM115 input wires with wire nuts as shown in **Figure 6** or to the TM230 connectors as shown in **Figure 7**.

24 VAC Output Power Connections

To connect to the 24VAC outputs:

1. Install electrical wiring from device requiring 24VAC power to the Transformer Module.
2. Use copper wire only; proper wiring to use for power is 18, 20 or 22 AWG copper wire. Strip wire 1/4".
3. There are two 24 VAC output connectors (TB1 and TB2). Terminate wires to the connector as shown in **Figures 6** and **7**. TB1 and TB2 are NOT polarity sensitive.
4. Secure the wires to the connector.

Figure 6 Power wiring to TM115

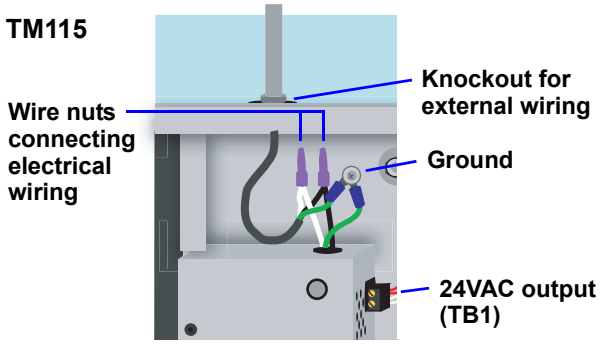
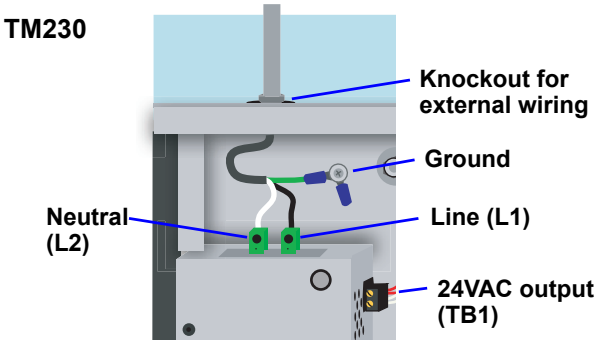


Figure 7 Power wiring to TM230



Troubleshooting - Transformer Module

A common problem and possible solution are shown in the table below. For further information or if you have other problems with the unit, consult your local dealer, Liebert representative or the Liebert Worldwide Support Group.

Problem	Possible Solution	Replacement Fuse Part Numbers
24VAC power not available from TB1 or TB2	Check fuse for respective output (TB1 or TB2).	• LITTLEFUSE 218002 *or* • BUSSMANN GDC-2A

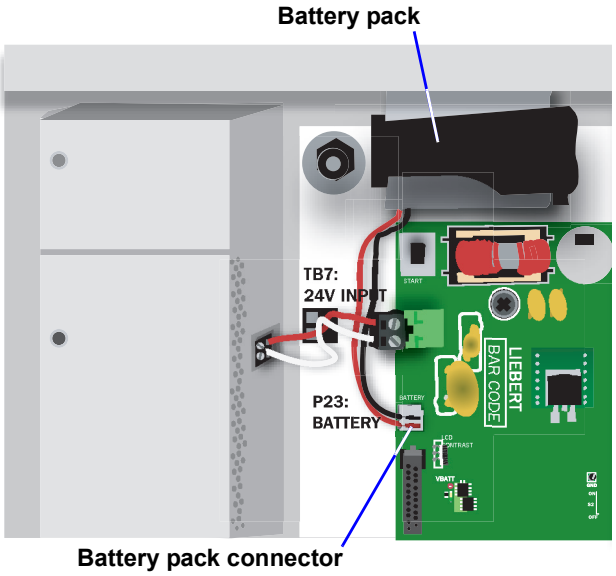
2.4.2 Connecting the Battery Pack

Before connecting input power to the AC8, connect the panel's backup battery (factory-supplied) to the jumpers so it will begin charging when electrical power to the AC8 is switched on.

NOTE

If the battery is not hooked up BEFORE the AC8 is switched on, it will trigger an alarm.

To connect the battery pack, insert the battery leads into the jumpers as shown at right. (To disconnect the battery pack, remove the battery leads from the jumpers.)



Obtaining a Replacement Battery Pack

To obtain a replacement battery pack, contact your local dealer or Liebert representative. The Liebert part number is 133455P1.

WARNING

To prevent the risk of fire or explosion, replace only with 7.2 V rechargeable NiCad battery pack.

CAUTION

Dispose of the battery properly by sending it back to Liebert Corporation or an approved battery recycling facility.

2.4.3 Turning On the AC8

After connecting the backup battery, turn on the power On/Off switches to the AC8 and the Transformer Module (see **1.7 - Controller Board Overview** for location of switches).

3.0 WIRING AND CONNECTIONS

CAUTION

Switch OFF electric power to the AC8 before installing any wiring to the unit or changing input or output connections. The Power On/Off switch is in the top left corner of the unit, just below the battery pack.

3.1 Wiring Specifications

Input and output connections to the AC8 may be made in any order—it is not necessary, for example, to make all input connections before making any output connections. Use copper conductors only for all wiring.

Table 4 Wiring specifications

Connection	Supported Wire Type	Maximum Wire Length			Rating
Digital Input/ EPOP	18-22 AWG Stranded & Unshielded **18 AWG* (recommended)** Non Plenum - Belden 9740 Plenum - Belden 89740	750 ft. (225m)			Dry Contact (24VDC, 10 mA)
Digital Output/ Control Relay	18-22 AWG Stranded & Unshielded **18 AWG* (recommended)** Non Plenum - Belden 9740 Plenum - Belden 89740	18 AWG* (recommended) @3A 50 ft. (15m) @2A 100 ft. (30m) @1A 200 ft. (60m)	20 AWG @3A 40 ft. (12m) @2A 60 ft. (18m) @1A 100 ft. (30m)	22 AWG @3A 25 ft. (7m) @2A 35 ft. (10m) @1A 75 ft. (23m)	24VAC@3A
Analog Input 2-Wire Transducer	18-22 AWG Stranded & Unshielded **18 AWG* (recommended)** Non Plenum - Belden 9740 Plenum - Belden 89740	750 ft. (225m)			4-20 mA Signal Input Selectable Power Source (12/24VDC)
Analog Input 4-Wire Transducer	18-22 AWG Stranded & Unshielded **18 AWG* (recommended)** Non Plenum - Belden 8489 Plenum - Belden 88489	750 ft. (225m)			4-20 mA Signal Input Selectable Power Source (12/24VDC)
Common Alarm Output	18-22 AWG Stranded & Unshielded **18 AWG* (recommended)** Non Plenum - Belden 9740 Plenum - Belden 89740	18 AWG* (recommended) @3A 50 ft. (15m) @2A 100 ft. (30m) @1A 200 ft. (60m)	20 AWG @3A 40 ft. (12m) @2A 60 ft. (18m) @1A 100 ft. (30m)	22 AWG @3A 25 ft. (7m) @2A 35 ft. (10m) @1A 75 ft. (23m)	24VAC @3A
Communication RS232	Null Modem Cable	50 ft. (15m)			N/A
Communication EIA422 SiteScan	18-22 AWG Stranded & Shielded **22 AWG* (recommended)** Non Plenum - Belden 9461 Plenum - Belden 88761	1000 ft. (300m)			N/A
Communication EIA485	18-22 AWG Stranded & Shielded **22 AWG* (recommended)** Non Plenum - Belden 9461 Plenum - Belden 88761	3000 ft. (900m)			N/A
Phone/Modem Line	4 Wire (Pins 3 & 4) RJ11 Connector	N/A			N/A
24VAC Power Connection (TB7)	18-22 AWG Stranded & Shielded **18 AWG* (recommended)** Non Plenum - Belden 8770 Plenum - Belden 88770	150 ft. (45m)			24VAC @1.3A
Power Connections (Transformer Module)					
115VAC	14 AWG Stranded & Unshielded Non Plenum - Belden 5101UE	150 ft. (45m)			115VAC @4A
230VAC	14 AWG Stranded & Unshielded Non Plenum - Belden 5101UE	150 ft. (45m)			230VAC @0.5A

* Recommended

3.2 Connecting Digital Inputs and Digital Outputs

The digital inputs, digital outputs and control relay outputs are found on the right side of the AC8's printed wiring assembly board. Each set has two terminal blocks—one green, the other black:

- **Digital inputs:** two terminal blocks, with four inputs per block (8 inputs total)
- **Digital outputs:** two terminal blocks, with four outputs per block (8 outputs total)
- **Control relay outputs:** two terminal blocks, with one output per block (2 outputs total)

Each input is tied to an output with the same number:

- Input 1 is tied to Output 1 (default name: Device_1)
- Input 2 is tied to Output 2 (default name: Device_2)
- Input 3 is tied to Output 3 (default name: Device_3)

  ⋮
- Input 8 is tied to Output 8 (default name: Device_8)

Up to eight devices may be connected to the AC8. Each device must be connected to an input and an output with the same number.

To determine the proper wire size, see **Table 4 - Wiring specifications**.

NOTE

Each terminal block is a removable, two-part assembly to permit easier connection of more than one input at a time. If making multiple connections, grasp the upper portion of a block and pull firmly to the right until the assembly pulls apart.

After making the connections, push the removed piece back into the portion attached to the printed wiring assembly until the terminal block pieces lock together.

Connecting Liebert Environmental Units

For Liebert environmental units, follow these steps (be sure to connect the same device to inputs and outputs with the same number—one device to Input 1 and Output 1, another to Input 2 and Output 2, and so on):

- Connect a digital input from the AC8 to the Common Alarm Relay of the environmental unit: terminals 75/76 or TB1-6, TB1-7.
- Connect a digital output (numbered the same as the input) from the AC8 to the Remote Shutdown (Power Control) of the environmental unit: terminal 37/38 or TB1-4, TB1-5.

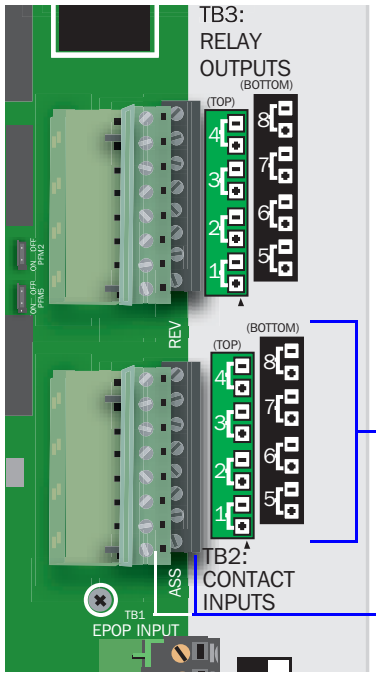
3.2.1 Connecting Digital Inputs

To connect a digital input:

1. Turn OFF electrical power to the AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the AC8 enclosure.
3. Bring the wire(s) into the AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.

NOTE

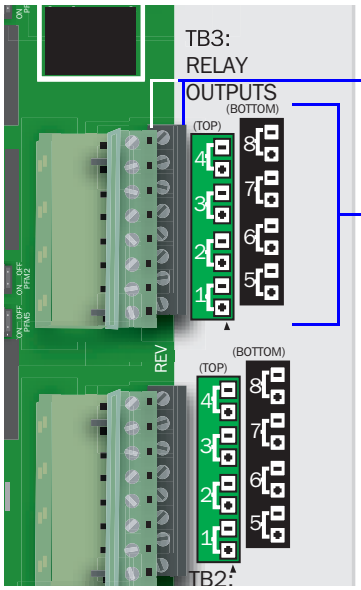
Connect digital inputs to nonpowered (dry) contacts only.



3.2.2 Connecting Digital Outputs

To connect a digital output:

1. Turn OFF electrical power to the AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the AC8 enclosure.
3. Bring the wire(s) into the AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



CAUTION

To reduce the risk of fire or electric shock, do not interconnect the outputs of different Class 2 circuits.

3.2.3 Setting the Digital Output Jumpers

Each digital output has an associated jumper to define its operation when power is interrupted and there is no battery backup to the board. This puts the AC8 in a *fail-safe mode* and ensures proper functioning when the board has no power or battery backup.

The AC8 comes from the factory with all digital output jumpers in the OFF position (Normally Open). The jumper setting for each digital output can be changed to ON (Normally Closed). The settings are shown in **Table 5**.

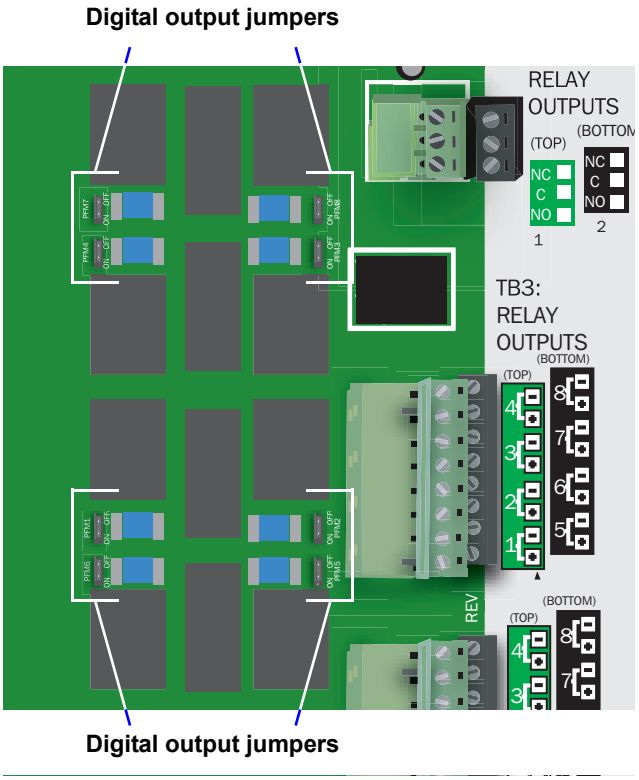
Table 5 Digital output jumper settings

Setting	Output status (power loss & no battery backup)
OFF	Normally Open
ON	Normally Closed

To change the output jumper setting:

1. Find the respective black output jumper on the circuit board, shown in the illustration, using the following guide.

Jumper	Associated output
PFM1	Output 1
PFM2	Output 2
PFM3	Output 3
PFM4	Output 4
PFM5	Output 5
PFM6	Output 6
PFM7	Output 7
PFM8	Output 8

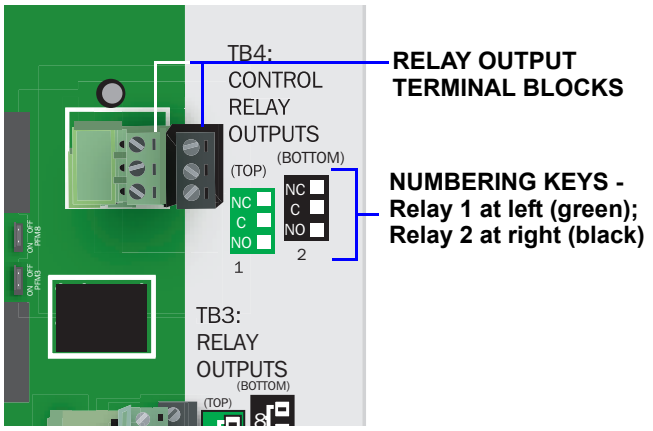


2. Decide whether your configuration requires the jumper to be OFF or ON.
3. Set the jumper as needed:
   - Set the jumper to OFF by placing the black jumper on the middle and top pins.
   - Set the jumper to ON by placing the black jumper on the middle and bottom pins.

3.2.4 Connecting Control Relay Outputs

To connect a control relay output:

1. Turn OFF electrical power to the AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the AC8 enclosure.
3. Bring the wire(s) into the AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



CAUTION

To reduce the risk of fire or electric shock, do not interconnect the outputs of different Class 2 circuits.

3.2.5 Connecting the Emergency Power Operation (EPOP) Input

The emergency power operation, or EPOP, input connector block (TB1) is at the bottom right corner of the AC8 printed circuit board, just below the digital inputs.

To determine the proper wire size, see **Table 4 - Wiring specifications**.

To connect to the EPOP input:

1. Turn OFF electrical power to the AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the AC8 enclosure.
3. Bring the wire into the AC8 enclosure through a conduit knockout or access slot.
4. Loosen each screw and slip the stripped end of the wire into the terminal block.
5. Tighten each screw until it holds the wire snugly.

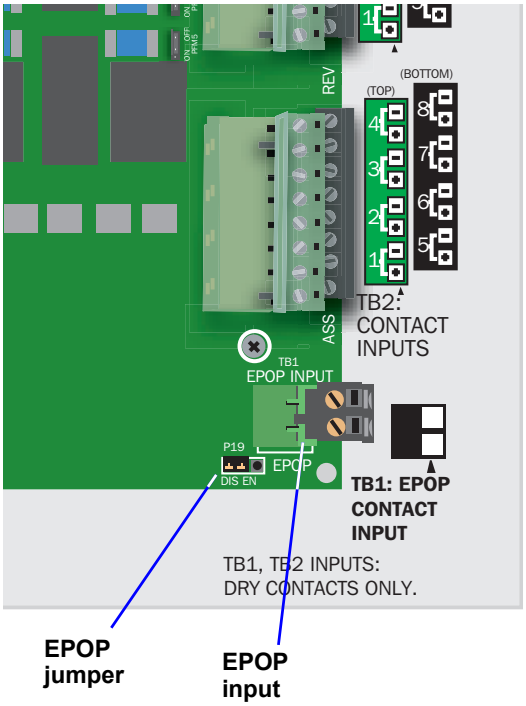
3.2.6 Setting the EPOP Jumper

The EPOP contact input has an associated jumper to enable or disable emergency power operation (EPOP).

The AC8 comes from the factory with the EPOP jumper in the Disabled position (DIS); it may be changed to Enabled (EN).

To change the EPOP jumper setting:

1. Find the black EPOP jumper on the circuit board, as shown at right. The jumper is at the bottom right corner of the board just below the EPOP contact input (see **1.7 - Controller Board Overview**).



2. Decide whether your configuration requires the jumper to be enabled or disabled.
3. Set the jumper as needed:
   - To enable EPOP, place the black jumper on the middle and right pins. The right side of the jumper is labeled EN for Enabled.

NOTE

When the EPOP jumper is set to Enabled, a Normally Closed contact must be attached or an alarm will be generated and the outputs will default to the EPOP operation setting.

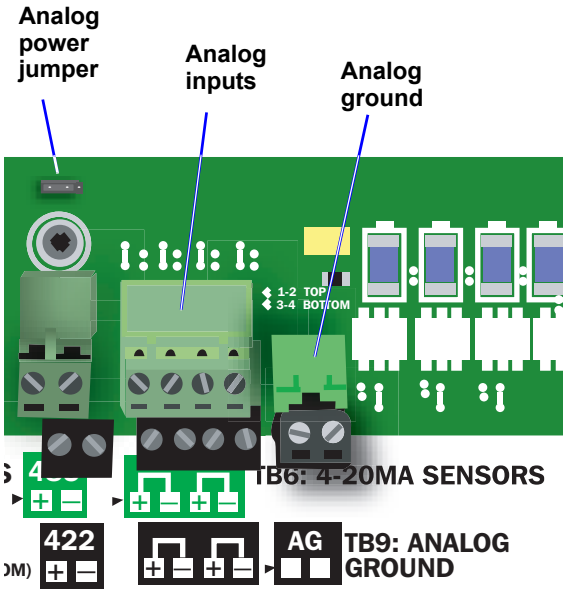
   - To disable EPOP, place the black jumper on the middle and left pins. The left side of the jumper is labeled DIS for Disabled.

3.3 Connecting Analog Inputs

The analog input connector blocks are at the bottom center of the AC8 printed circuit board, as shown below right. The blocks are two-part assemblies to permit easier connections. To determine the proper wire size, see **Table 4 - Wiring specifications**.

To connect an input:

1. Turn OFF electrical power to the AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the AC8 enclosure.
3. Bring the wire(s) into the AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



3.3.1 Setting the 12VDC/24VDC Analog Power Jumper

The analog power jumper sets the common voltage that is applied to all of the analog input connections. The jumper permits the user to modify the voltage supplied to the sensors, according to the power requirements.

The factory default position is 24VDC; it may be changed to 12VDC.

To change the analog power jumper setting:

1. Find the black analog jumper on the circuit board, as shown at right. The jumper is at the bottom of the board near the middle (see **1.7 - Controller Board Overview**).
2. Decide whether your configuration requires the jumper to be 24VDC or 12VDC.
3. Set the jumper as needed:
   - To set the jumper to the 24VDC position, place the black jumper on the middle and right pins.
   - To set the jumper to the 12VDC position, place the black jumper on the middle and left pins.

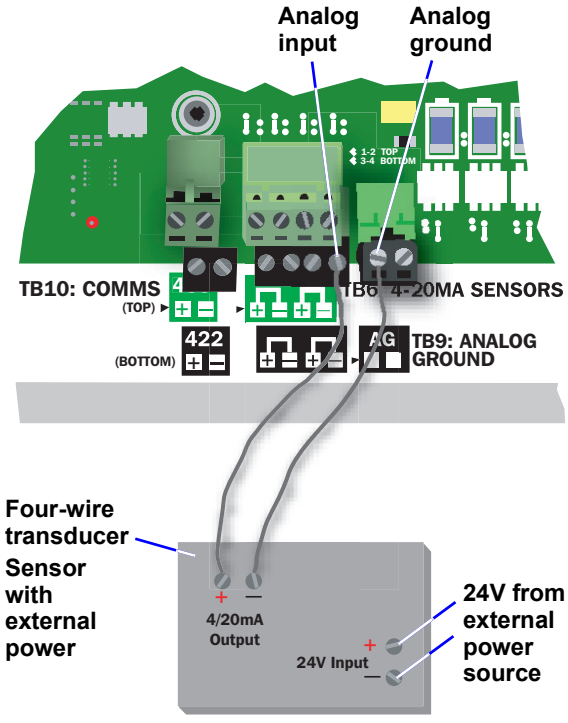
3.3.2 Connecting the Analog Ground

The AC8 features an analog ground connection for four-wire sensors that have an external power source. Such a four-wire sensor requires a reference to ground because they get power from an external power source.

A two-wire transducer, which does not have an external power source, does not need to be connected to the analog ground.

The analog ground connector has two terminals, each of which can accommodate two wires. This is adequate to connect four sensors that require a reference to ground because they get power from an external power source.

Connect the analog ground to an external four-wire sensor, as shown in the illustration at right.



3.4 Connecting Common Alarm Outputs

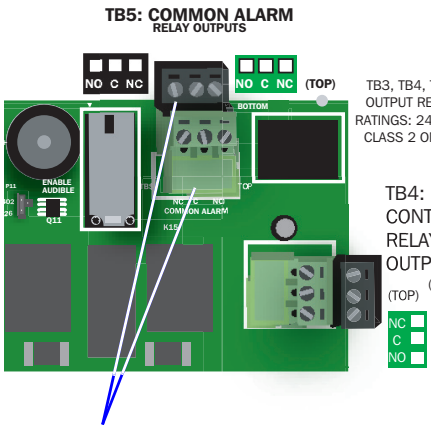
The common alarm relay, found in the top right corner of the AC8, permits the user to connect auxiliary notification equipment, such as lights, horns and sirens, to the AC8. To determine the proper wire size, see **Table 4 - Wiring specifications**.

There are two connectors for the common alarm output. However, the connectors are not individual relay outputs. The connectors should be treated as a double-pole, double-throw (DPDT) relay.

The common alarm relay is energized whenever an alarm occurs.

To connect an output:

1. Turn OFF electrical power to the AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the AC8 enclosure.
3. Bring the wire(s) into the AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



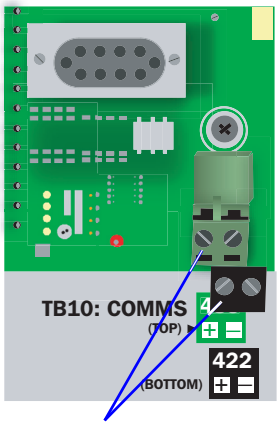
Common alarm outputs

3.5 EIA422 SiteScan Web Connector

The AC8 will interface with Liebert's SiteScan Web enterprise monitoring system. SiteScan can be used to monitor analog and digital equipment from a host computer and also to perform some configuration.

To connect the SiteScan host computer to the AC8:

1. Turn OFF electrical power to the AC8.
2. If necessary, remove a conduit knockout to permit wire entry into the AC8 enclosure.
3. Bring the wire(s) into the AC8 enclosure through a conduit knockout or access slot.
4. Loosen the appropriate screw and slip the stripped end of the wire into the terminal block.
5. Tighten the screw until it holds the wire snugly.



EIA422 SiteScan Web connector

3.6 Communications Connections

The AC8's Service Terminal Interface offers full configuration and monitoring capability via the RS232 port and the phone line connector (see **A.2 - Connecting to the Service Terminal Interface**). The phone line connector is also used for pager notifications and service phone number options.

3.6.1 RS232 Connector

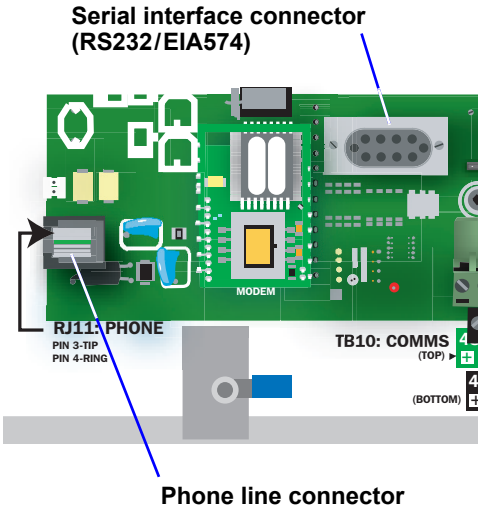
The RS232 port requires a null modem cable.

- Connect one end of the cable to the AC8's RS232 port, as shown at right.
- Connect the other end to the COM1 port of a laptop computer or video terminal.

3.6.2 Phone Line Connector

The Phone Line Connector requires an RJ11 connector.

- Connect one end of the connector to the AC8's phone line connector, shown at right.
- Connect the other end to a telephone wall jack.



4.0 OVERVIEW OF MENUS

There are two ways to access the AC8: the LCD on the front of the enclosure and the Service Terminal Interface, which is accessible through any computer using a communications program. Many viewing and configuration tasks can be performed through either interface, but some are available only through the Service Terminal Interface.

- Step-by-step instructions for all functions appear in **Sections 5.0** through **7.0**. These instructions use examples of LCD screens to illustrate most functions, except those not available via the LCD.
- Examples of all Service Terminal Interface screens appear in **Appendix A - Service Terminal Interface**, along with instructions on how to connect to the Service Terminal Interface.

Table 6 lists all AC8 functions and shows whether they can be performed through the LCD interface and where to find information.

Table 6 Guide to AC8 functions

Function		Can be performed via:		Where to find:	
		LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
VIEW STATUS FUNCTIONS					
View Active Alarms		✔	✔	page 22	page 85
View Alarm Log		✔	✔	page 23	page 86
View Event Log		✔	✔	page 24	page 87
View Trend Log		✔	✔	page 25	page 88
View Input Status		✔	✔	page 26	page 89
View Output Status		✔	✔	page 27	page 89
View Pager Numbers		✔	✔	page 28	page 90
View Operation		✔	✔	page 29	page 91
View Control Status		✔	✔	page 28	page 91
SILENCE ALARM & BACK UP LOGS FUNCTIONS					
Silence Alarm *(On the LCD, press any key to silence an alarm)*		✔	✔	page 31	page 92
Back Up Log Files		—	✔	page 32	page 93
SYSTEM & CONTROL FUNCTIONS					
Login		✔	✔	page 34	page 95
Setup System		✔	✔	page 36	page 96
Setup Inputs		✔	✔	page 36	page 97
Setup Common Alarm		✔	✔	page 39	page 97
Setup Sensor		✔	✔	page 40	page 98
Setup Zones		✔	✔	page 46	page 116
Setup Outputs		✔	✔	page 47	page 99
Setup Modem & Pagers		✔	✔	page 49	page 100
Modem Setup	Initialization String	✔	✔	page 49	page 101
	Enter AC8 Phone Number	—	✔	page 51	page 101
	Enable Modem Diagnostic Messages	—	✔	page 51	page 101
	Change Modem Dial Prefix	—	✔	page 51	page 101
	Change Modem Hang Up Delay After a Call	—	✔	page 51	page 101
Pager Setup	Pager Number & PIN	✔	✔	page 53	page 100
	Communications Check	—	✔	page 55	page 100
Setup System Info		✔	✔	page 57	page 102
Change Password		✔	✔	page 58	page 102
Change Date & Time/Automatic Daylight Saving Time		✔	✔	page 58	page 103
Setup Site ID		✔	✔	page 59	page 103
Connect Battery		✔	✔	page 59	page 103
Backup and Upload Configuration File		—	✔	page 60	page 104
Setup Serv Ph Num - Enter Phone Number		✔	✔	page 63	page 105
Setup Serv Ph Num - Communications Check		—	✔	page 64	page 105
Factory Defaults		✔	✔	page 65	page 105
Perform Firmware Update		—	✔	page 65	page 106
Initiate Remote Alarm Test		—	✔	page 67	page 106
Setup Operation		✔	✔	page 68	page 107
Setup I/O Matrix		✔	✔	page 73	page 116
Override Output		✔	✔	page 75	page 113
Clear Alarms & Logs		✔	✔	page 76	page 114
Clear Active Alarms		✔	✔	page 76	page 114
Clear the Alarm Log		✔	✔	page 76	page 114
Clear the Event Log		✔	✔	page 77	page 115
Clear the Trend Logs		✔	✔	page 77	page 115

4.1 Opening Screen Overview

The AC8 displays the Opening Screen at startup, as shown in **Figure 8**.

- If any alarms are active, the Current Alarm screen appears. (Pressing any key on the LCD keypad will silence the audible alarm.)
- If any analog input sensors are connected, the LCD screen will alternately display the Opening Screen and a screen showing the analog value of each sensor.

If no alarms are present, the Main Menu appears.

4.2 Main Menu Overview

The Main Menu offers access to all functions within the panel. As shown in **Table 7**, the functions are organized into three sections with step-by-step instructions.

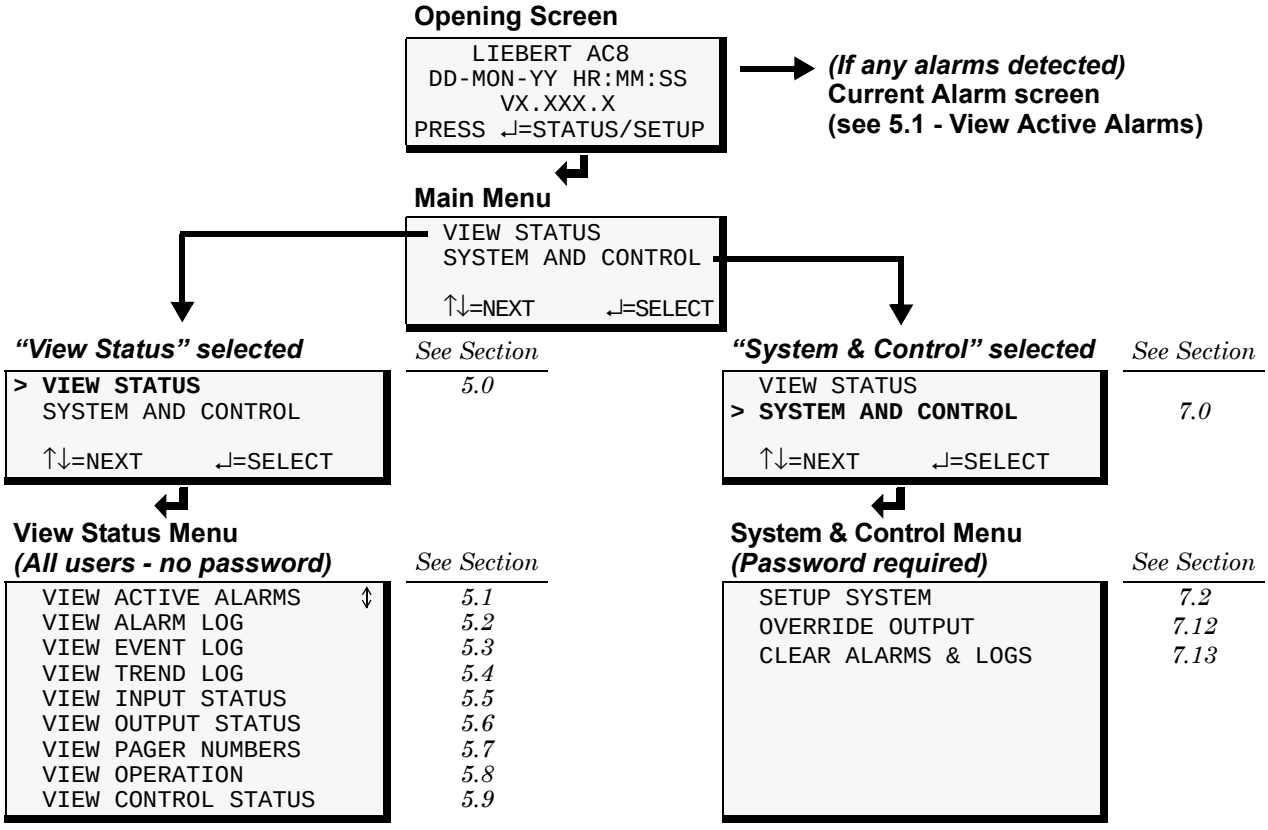
Table 7 Primary functions overview

Section	Description
5.0 - **View Status Options** (both LCD and Service Terminal Interface)	These features are available to all users. This permits all personnel to check the status of any monitored equipment or location. From this menu, any user may: • View current monitoring data—active alarms and the status of inputs and outputs • View data stored in alarm, event and trend logs • View pager numbers • View auto sequencing and standby testing status
6.0 - **Silence Alarm & Backup Log Files** (Service Terminal Interface only)	These features—available via the Service Terminal Interface only—allow users to: • Silence the audible alarm • Back up the alarm, event and trend logs
7.0 - **System and Control Options** (some functions available via Service Terminal Interface only)	These options require a password. Authorized users may: • Configure the AC8 • Override automatic control of outputs to force an output ON or OFF • Clear active alarms and delete all records in the alarm, event and trend logs

4.3 LCD Menu Overview

Figure 8 shows an overview of the initial screens available through the LCD interface. For comparable information about the Service Terminal Interface screens, see **A.3 - Overview of Menus**.

Figure 8 LCD Menu overview



5.0 VIEW STATUS OPTIONS

NOTE

For ease of understanding, this section uses the LCD interface to illustrate most instructions, except for features that are available only through the Service Terminal Interface. All Service Terminal Interface screens appear in ***Appendix A - Service Terminal Interface****.*

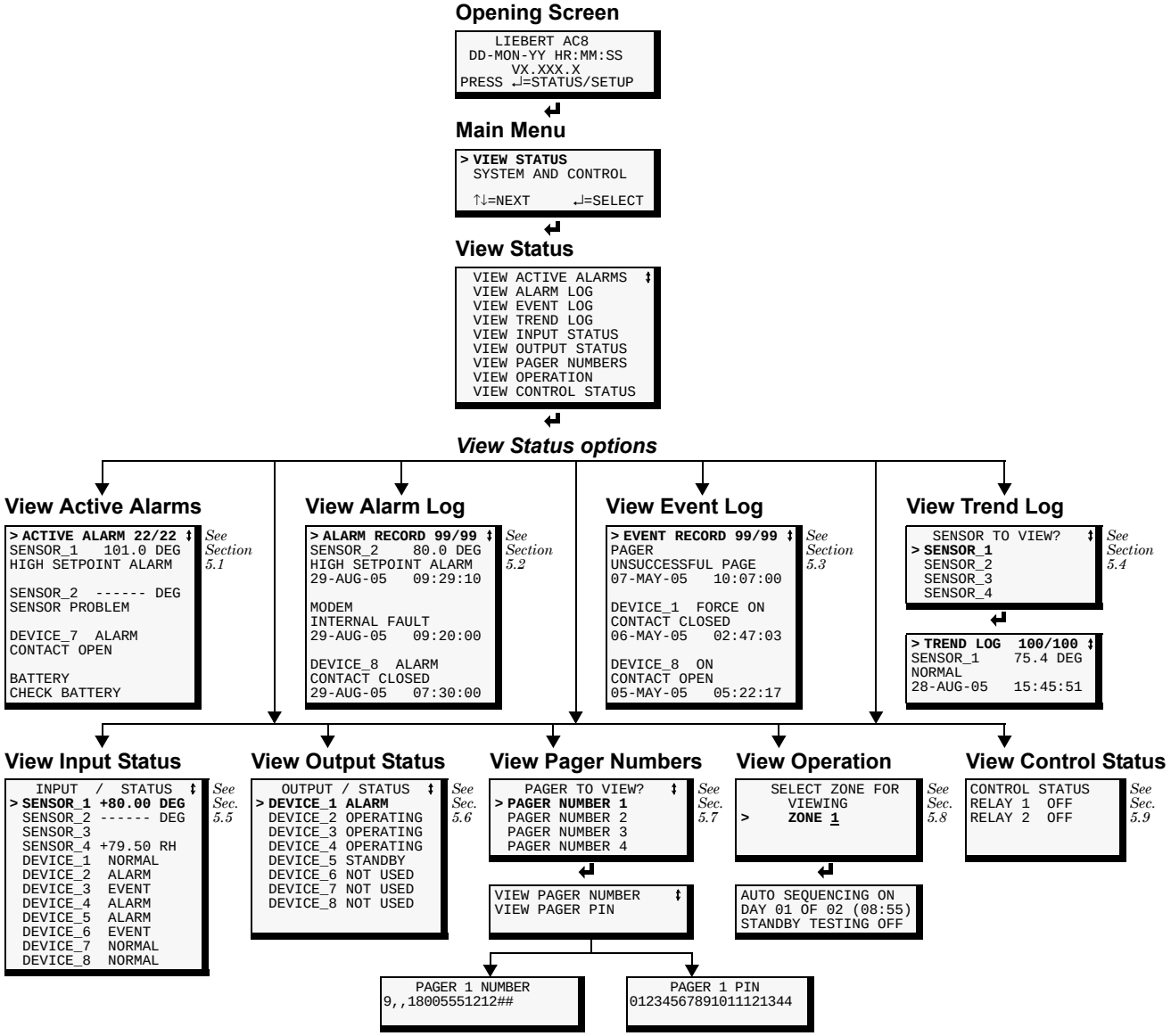
The View Status menu allows any user to view currently active alarms, monitoring data stored in the alarm, event and trend logs, the status of all inputs and outputs, and the four pager numbers. The arrows ↑↓ are used to scroll through the menu. The Enter ↵ key is used to select the menu item.

This section presents step-by-step instructions for each of the following options:

- View Active Alarms
- View Alarm Log
- View Event Log
- View Trend Log
- View Input Status
- View Output Status
- View Pager Numbers
- View Operation
- View Control Status

Figure 9 shows the main options available from the View Status menu.

Figure 9 Menu overview - View Status menu



5.1 View Active Alarms

The Active Alarm screen displays all alarms that are occurring, up to a maximum of 22.

A Current Alarm screen appears automatically whenever an alarm occurs—except during setup. This screen can display only the two most recent active alarms. To view any other active alarms, use the View Active Alarms feature.

You may view active alarms at any time by using the following steps:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, as shown at right, and then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Active Alarms** and press Enter ↵.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

↵

View Status Menu

```
> VIEW ACTIVE ALARMS   ⇕
  VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW TREND LOG
  ──────────────────
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
  VIEW OPERATION
  VIEW CONTROL STATUS
```

↵

Active Alarms

```
> ACTIVE ALARM 22/22   ⇕
SENSOR_1   101.0 DEG
HIGH SETPOINT ALARM

SENSOR_2  ------ DEG
SENSOR PROBLEM
  ──────────────────

DEVICE_7  ALARM
CONTACT OPEN

BATTERY
CHECK BATTERY
```

5.1.1 Active Alarms

The Active Alarms screen displays up to 22 records; it shows any active alarm and any Latched alarm that has not been cleared. Examples of alarms include inputs in alarm status, a low battery condition and a loss of connection to an analog input. When any alarms are present, the Active Alarms screen shows descriptive details for each alarm:

- the source of the alarm (for example, `SENSOR_1` or `BATTERY`)
- the status of an input or output (`101.0 DEG`)
- a brief description of the problem (`HIGH SETPOINT ALARM` or `CHECK BATTERY`)

If there are no active alarms, the screen displays the message:

NO ALARMS PRESENT

Viewing Additional Screens

There may be up to 22 records of alarm data.

- To view additional records, use the arrows ↑↓.
- To return to the previous screen, press the ESC key.

Clearing Active Alarms

To clear all active alarms, see **7.13 - Clear Alarms & Logs**. Alarm records are stored in the Alarm Log.

5.2 View Alarm Log

The Alarm Log contains up to 99 records of alarms that have occurred. Records are added to this log as alarms occur.

To view the Alarm Log:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Alarm Log**, then press Enter ↵.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

↵

View Status Menu

```
  VIEW ACTIVE ALARMS   ⇕
> VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW TREND LOG
  ──────────────────
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
  VIEW OPERATION
  VIEW CONTROL STATUS
```

↵

Alarm Log

```
> ALARM RECORD 99/99   ⇕
SENSOR_2    80.0 DEG
HIGH SETPOINT ALARM
29-AUG-05   09:29:10
──────────────────────
MODEM
INTERNAL FAULT
29-AUG-05   09:20:00
──────────────────────
DEVICE_8  ALARM
CONTACT CLOSED
29-AUG-05   07:30:00
```

5.2.1 Alarm Log

The Alarm Log screen displays up to 99 records showing alarm data, including input alarms and other conditions, such as loss of power or low battery. If the log contains any alarm records, the Alarm Log screen displays details for each alarm:

- the source of the alarm (for example, `SENSOR_2` or `MODEM`)
- the status of an input or output (`80.0 DEG`)
- a brief description of the problem (`HIGH SETPOINT ALARM` or `INTERNAL FAULT`)
- the date and time the alarm occurred

Table 8 shows conditions that the alarm log records for digital inputs and analog inputs and in the panel itself.

Table 8 Alarm log conditions

SOURCE	Digital Input	Analog Input	
CONDITIONS RECORDED	ALARM NORMAL	HIGH SETPOINT ALARM LOW SETPOINT ALARM RETURN TO NORMAL SENSOR PROBLEM *(denoted by dashes ------)*	
SOURCE	**Panel**		
CONDITIONS RECORDED	LOSS OF POWER LOW BATTERY CHECK BATTERY BATTERY UNPLUGGED	ALARMS CLEARED ALARM SILENCED MODEM INTERNAL FAULT	NO STANDBY AVAILABLE STANDBY DEVICE FAILED NO RESTART AVAILABLE EMERGENCY PWR ALARM

If there are no alarms in the log, the screen displays the message:

NO ALARMS

Viewing Additional Screens

There may be up to 99 records of alarm data.

- To view additional records, use the arrows ↑↓.
- To return to the previous screen, press the ESC key.

5.2.2 Backing Up the Alarm Log *(Service Terminal Interface only)*

The alarm log is stored as a file in the AC8; it can hold no more than 99 records. When the log is full, the oldest records are deleted from the end of the file as new alarm records are added at the beginning.

You may back up the alarm log file to a remote computer using the Service Terminal Interface, as described in **6.2 - Back Up Log Files (Service Terminal Interface only)**.

To delete all records in the alarm log, see **7.13 - Clear Alarms & Logs**.

5.3 View Event Log

In addition to alarms, the AC8 tracks other changes in the Event Log to assist users with verifying operational and troubleshooting problems. Events reflect changes in the status of an input that is defined as an event or the change of state of an output (i.e., manually forced ON or OFF). Other events may be informational, such as a user login or an unsuccessful page attempt. The Event Log contains up to 99 records of events, which are added as they occur.

To view the Event Log:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Event Log**, then press Enter ↵.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

↵

View Status Menu

```
  VIEW ACTIVE ALARMS   ⇕
  VIEW ALARM LOG
> VIEW EVENT LOG
  VIEW TREND LOG
  ──────────────────
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
  VIEW OPERATION
  VIEW CONTROL STATUS
```

↵

Event Log

```
> EVENT RECORD 99/99   ⇕
PAGER
UNSUCCESSFUL PAGE
07-MAY-05   10:07:00
──────────────────
DEVICE_1  FORCE ON
CONTACT CLOSED
06-MAY-05   02:47:03
──────────────────
DEVICE_8  ON
CONTACT OPEN
05-MAY-05   05:22:17
```

5.3.1 Event Log

The Event Log screen displays up to 99 recent events. If the log contains any event records, the Event Log screen displays details for each event:

- the event source (for example, `PAGER` or `DEVICE_1`)
- the status of an input or output (`FORCE ON`)
- a brief description of the event (`UNSUCCESSFUL PAGE` or `CONTACT CLOSED`)
- the date and time the event occurred

Table 9 shows conditions that the event log records for inputs and outputs and in the panel itself.

Table 9 Event log conditions

SOURCE	Digital Input	Analog Input	Digital Output	
CONDITIONS RECORDED	EVENT NORMAL	HIGH SETPOINT EVENT LOW SETPOINT EVENT RETURN TO NORMAL SENSOR PROBLEM *(denoted by dashes ------)*	FORCE ON FORCE OFF AUTO HW FORCE ON ON OFF	DISABLED STAGING DEVICE ON STAGING DEVICE OFF RESTORED STARTED
SOURCE	**Panel**			
CONDITIONS RECORDED	ALARMS CLEARED ALARM SILENCED DIAL OUT TEST PASSED DIAL OUT TEST FAILED UNSUCCESSFUL PAGE	DEFAULT PASSWORD SET MODEM RESET TIME & DATE SET USER LOGIN NOT USED DEVICES IN ZONE	NO STANDBY OUTPUTS AVAILABLE NO STANDBY TESTING DEVICE AVAILABLE EMERGENCY PWR ALARM STAGING DISABLED	

If there are no records in the log, the screen displays the message:

NO EVENTS

Viewing Additional Screens

There may be up to 99 records of event data.

- To view additional records, use the arrows ↑↓.
- To return to the previous screen, press the ESC key.

5.3.2 Backing Up the Event Log *(Service Terminal Interface only)*

The event log is stored as a file in the AC8; it can hold no more than 99 records. When the log is full, the oldest records are deleted from the end of the file as new event records are added at the beginning.

You may back up the event log file to a remote computer using the Service Terminal Interface, as described in **6.2 - Back Up Log Files (Service Terminal Interface only)**.

To delete all records in the event log, see **7.13 - Clear Alarms & Logs**.

5.4 View Trend Log

The AC8 takes readings of configured analog input sensors at regular intervals and stores them in four separate trend logs, one for each sensor. The time interval is 30 minutes. Each log contains up to 100 records.

Follow these steps to select a sensor and view its trend log:

5.4.1 Select a Sensor

To select a sensor:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Trend Log**, then press Enter ↵.
- From the Sensor Selection Menu, use the arrows ↑↓ to choose the sensor you want to view—**Sensor_1** in the example at right—and press Enter ↵.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT     ↵=SELECT
```

↵

View Status Menu

```
  VIEW ACTIVE ALARMS  ⇕
  VIEW ALARM LOG
  VIEW EVENT LOG
> VIEW TREND LOG
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
  VIEW OPERATION
  VIEW CONTROL STATUS
```

↵

Select Sensor Menu

```
   SENSOR TO VIEW?    ⇕
> SENSOR_1
  SENSOR_2
  ↑↓=NEXT  ↵=SELECT
  SENSOR_3
  SENSOR_4
```

↵

Trend Log

```
> TREND LOG  100/100  ⇕
SENSOR_1    75.4 DEG
NORMAL
28-AUG-05   15:45:51
SENSOR_1    70.5 DEG
LOW SETPOINT EVENT
28-AUG-05   15:15:51
SENSOR_1    79.9 DEG
RETURN TO NORMAL
28-AUG-05   14:45:21
```

5.4.2 View a Trend Log

The Trend Log screen displays up to 100 records for the selected sensor. If the log contains records, the screen displays details for each reading:

- the name of the selected sensor (for example, `SENSOR_1`)
- the reading (`75.4 DEG`)
- a brief description of the reading status (`NORMAL`)
- the date and time of the reading

Table 10 shows conditions that the trend log records for analog inputs. Each analog input has its own trend log.

Table 10 Trend log conditions

SOURCE	Analog Input
CONDITIONS RECORDED	LOW SETPOINT ALARM LOW SETPOINT EVENT HIGH SETPOINT ALARM HIGH SETPOINT EVENT RETURN TO NORMAL NORMAL SENSOR PROBLEM *(denoted by dashes ------)*

If there are no records in the log, the screen displays the message:

NO TRENDS

Viewing Additional Screens

There may be up to 100 records of trend data for the selected sensor.

- To view additional records, use the arrows ↑↓.
- To return to the previous screen, press the ESC key.

5.4.3 Backing Up the Trend Log *(Service Terminal Interface only)*

The four trend logs are stored as files in the AC8, with a maximum of 100 records per sensor. When a log is full, the oldest records are deleted from the end of the file as new trend records are added at the beginning.

You may back up each trend log file to a remote computer using the Service Terminal Interface, as described in **6.2 - Back Up Log Files (Service Terminal Interface only)**.

To delete all records in the trend logs, see **7.13 - Clear Alarms & Logs**.

5.5 View Input Status

The Input Status option allows you to view the current status of all inputs: the four analog sensor inputs and the eight digital inputs.

To view the Input Status:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Input Status**, then press Enter ↵.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT     ↵=SELECT
```

↵

View Status Menu

```
  VIEW ACTIVE ALARMS   ⇕
  VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW TREND LOG
> VIEW INPUT STATUS
  VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
```

↵

Input Status

```
   INPUT  /  STATUS    ⇕
> SENSOR_1 +80.00 DEG
  SENSOR_2 ------ DEG
  SENSOR_3
  SENSOR_4 +79.50 RH
> DEVICE_1 ALARM
  DEVICE_2 NORMAL
  DEVICE_3 NORMAL
  DEVICE_4 NORMAL
  DEVICE_5 ALARM
  DEVICE_6 EVENT
  DEVICE_7 NORMAL
  DEVICE_8 NORMAL
```

5.5.1 Input Status

The Input Status screen displays the status of each analog sensor and digital input.

Analog Sensor Inputs

The following details are displayed for analog sensor inputs:

- the name of the analog sensor input (for example, `SENSOR_1`)
- the current reading (`+80.00 DEG`)—values are updated constantly while being viewed

There are three possible states for an analog input, as shown in **Table 11**.

Table 11 Analog input states

State	Description
Functional	Reading—for example, `+80.00 DEG or +79.50 RH`
Problem with connection	Dashes (`------`)
Not configured	Blank

NOTE

If the status displays dashes (`------`), the AC8 was unable to take a reading. There may be a connection problem.

If the status is blank, the sensor is not configured as being connected.

Digital Inputs

The following details appear for digital inputs:

- the name of the digital input (for example, `DEVICE_1`)
- the current status (`NORMAL`)—values are updated constantly while being viewed

There are three possible states for a digital input, as shown in **Table 12**.

Table 12 Digital input states

State	Description
NORMAL	In normal state
ALARM	In alarm status (for an input configured as alarmable)
EVENT	An event has occurred (for an input configured as an event)

Viewing Additional Input Data

All input data may be viewed by scrolling beyond the four lines that appear on the LCD at one time:

- To view all inputs, use the arrows ↑↓.
- To return to the previous screen, press the ESC key.

5.6 View Output Status

The Output Status option allows you to view the current status of all eight outputs.

To view the Output Status:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Output Status**, then press Enter ↵.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

↵

View Status Menu

```
  VIEW ACTIVE ALARMS   ⇕
  VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW TREND LOG
  ──────────────────────
  VIEW INPUT STATUS
> VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
  VIEW OPERATION
  VIEW CONTROL STATUS
```

↵

Output Status

```
   OUTPUT / STATUS     ⇕
> DEVICE_1 ALARM
  DEVICE_2 OPERATING
  DEVICE_3 OPERATING
  ──────────────────────
  DEVICE_4 OPERATING
```

5.6.1 Output Status

The Output Status screen displays the status of each digital output.

The following details appear for digital outputs:

- the name of the output (for example, DEVICE_1)
- the current status (**ALARM**)—values are updated constantly while being viewed

There are eight possible states for a digital output, as shown in **Table 13**.

Table 13 Digital output states

State	Description
OPERATING	Device operating, or ON
STANDBY	Device in standby mode
ALARM	Device in alarm
FORCE ON	Device forced ON by operator
FORCE OFF	Device forced OFF by operator
HW FORCE ON	Device forced ON by hardware switch
STAGED ON	Device staged on by high sensor
EPOP OFF	Device forced off by emergency power operation
PENDING	Pending delay timer
NOT USED	Device not used

Viewing Additional Output Data

All output data may be viewed by scrolling beyond the four lines that appear on the LCD at one time:

- To view all outputs, use the arrows ↑↓.
- To return to the previous screen, press the ESC key.

5.7 View Pager Numbers

The AC8 may be set up to dial pager numbers when an alarm is detected. Up to four pagers may be configured, as described in **7.8 - Setup System - Setup Modem & Pagers**.

The View Pager Numbers option allows you to view the pager numbers and PINs for all configured pagers. Use the following steps to select a pager and view its information.

5.7.1 Select a Pager

To select a pager:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Pager Numbers**, then press Enter ↵.
- From the Pager Selection screen, use the arrows ↑↓ to choose the pager you want to view—**Pager Number 1** in the example at right—and press Enter ↵.
- Use the following steps to view a pager number or PIN for the selected pager.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT     ↵=SELECT
```

View Status Menu

```
  VIEW ACTIVE ALARMS   ⇕
  VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW TREND LOG
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
> VIEW PAGER NUMBERS
  VIEW OPERATION
  VIEW CONTROL STATUS
```

Pager Selection

```
    PAGER TO VIEW?     ⇕
> PAGER NUMBER 1
  PAGER NUMBER 2
  PAGER NUMBER 3
  PAGER NUMBER 4
```

5.7.2 View a Pager Number

To view a pager number:

- Choose **View Pager Number** from the Pager Menu and press Enter ↵.
- The Pager Number screen displays the number that is configured for the selected pager.

  In the example at right, the telephone number is preceded by A to dial an alphanumeric pager and includes a comma (,) to pause two seconds after dialing "1" before proceeding to dial the area code and number. To change this number, see **7.8.3 - Pager Setup - Pager Number and PIN**.
- Press ESC to return to the Pager Menu.

Pager Menu

```
> VIEW PAGER NUMBER    ⇕
  VIEW PAGER PIN
```

Pager Number

```
    PAGER 1 NUMBER
A1,8005551212
```

5.7.3 View a Pager PIN

To view a pager PIN:

- Choose **View Pager PIN** from the Pager Menu and press Enter ↵.
- The Pager PIN screen displays the PIN that is configured for the selected pager. To change this number, see **7.8 - Setup System - Setup Modem & Pagers**.
- Press ESC to return to the Pager Menu.

Pager Menu

```
  VIEW PAGER NUMBER    ⇕
> VIEW PAGER PIN
```

Pager PIN

```
     PAGER 1 PIN
01234567891011121344
```

5.8 View Operation

The Operation option allows you to view the current settings for Auto Sequencing, Standby Testing and Staging in each zone.

Use the following steps to select a zone and view the status of these features.

5.8.1 Select a Zone

To select a zone:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Operation**, then press Enter ↵.
- From the Zone Selection screen, use the arrows ↑↓ to choose the zone you want to view—**Zone 1** in the example at right—and press Enter ↵.

5.8.2 View Operation

The Operation screen displays the following details for each feature:

- the name of the feature (for example, `AUTO SEQUENCING`)
- the status (`ON` or `OFF`)
- the date and time when Auto Sequencing or Standby Testing is scheduled to occur (for example, `DAY 01 OF 02 (08:55`). The time appears in the format HH:MM (hours and minutes in military time)

  OR
- the target setpoint and sensitivity level that will initiate Staging

  To change these settings, see the following sections in **7.10 - Setup Operation**:
  - **7.10.1 - Turn Automatic Sequencing On or Off**
  - **7.10.2 - Turn Standby Testing On or Off**
- Press ESC to return to the Zone Selection Menu.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

View Status Menu

```
  VIEW ACTIVE ALARMS  ⇕
  VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW TREND LOG
  ──────────────────
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
> VIEW OPERATION
  VIEW CONTROL STATUS
```

Zone Selection

```
  SELECT ZONE FOR
      VIEWING
>     ZONE 1
↑↓=NEXT   ↵=EDIT
```

Operation

```
  AUTO SEQUENCING ON
  DAY 01 OF 02 (08:55)
  STANDBY TESTING OFF

  ──────────────────
      STAGING OFF
```

5.9 View Control Status

The Control Status option allows you to view the current status of the two control relays.

To view the Control Status:

- From the Main Menu, use the arrows ↑↓ to choose **View Status**, then press Enter ↵.
- From the View Status Menu, use the arrows ↑↓ to choose **View Control Status**, then press Enter ↵.

Main Menu

```
> VIEW STATUS
  SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

↵

View Status Menu

```
  VIEW ACTIVE ALARMS   ⇕
  VIEW ALARM LOG
  VIEW EVENT LOG
  VIEW TREND LOG
  ──────────────────────
  VIEW INPUT STATUS
  VIEW OUTPUT STATUS
  VIEW PAGER NUMBERS
  VIEW OPERATION
> VIEW CONTROL STATUS
```

↵

Control Status

```
  CONTROL STATUS
  RELAY 1  OFF
  RELAY 2  OFF
```

5.9.1 Control Status

The Control Status screen displays the status of each relay.

- the name of the output (for example, `RELAY 1`)
- the status (`ON` or `OFF`)

6.0 SILENCE ALARM & BACKUP LOG FILES *(SERVICE TERMINAL INTERFACE)*

This section describes two features that are available in the Service Terminal Interface:

- Silence Alarm
- Backup Log Files

6.1 Silence Alarm *(Service Terminal Interface)*

The Silence Alarm menu item allows you to silence the audible alarm and reset the Common Alarm Relay output if the common alarm is configured to reset with silence.

This menu item is available only through the Service Terminal Interface and SiteScan Web connection.

NOTE
An alarm may also be silenced by pressing any key on the LCD keypad on the front of the AC8. The LCD does not offer Silence Alarm as a menu item.

To silence the alarm remotely through the Service Terminal Interface:

- Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **8** (Silence Alarm).
- At the Silence Alarm menu, shown below, enter **1** to silence the audible alarm immediately. (To exit without silencing the alarm, enter **2** or press the Escape key.)

Silence Alarm ***(Service Terminal Interface only)***

```
     SILENCE ALARM

  Silence alarm and reset
  common alarm relay if
  common alarm relay is
  configured to reset with
  silence alarm

   1=SILENCE ALARM
   2=RETURN TO MAIN MENU

 SELECT A NUMBER:1
 ------------------------------------------------------------------------

>ALARM HAS BEEN SILENCED
```

- A confirmation message appears: “Alarm has been silenced.”

NOTE
Through SiteScan Web, this option is available via the AC8 Graphic Screen.

6.2 Back Up Log Files *(Service Terminal Interface only)*

The AC8 maintains three types of logs—alarm, event and trend—that may be backed up to a remote computer.

This feature is available only through the Service Terminal Interface.

To back up any of the alarm, event or trend logs:

1. Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
2. At the Main Menu, enter **9** (Backup Log Files).
3. At the Backup Log Files menu, as shown below, enter a number for the type of file you want to back up:
   - Enter **1** to back up the Alarm Log
   - Enter **2** to back up the Event Log
   - Enter **3** to back up the Trend Log for the first sensor (Sensor_1)
   - Enter **4** to back up the Trend Log for the second sensor (Sensor_2)
   - Enter **5** to back up the Trend Log for the third sensor (Sensor_3)
   - Enter **6** to back up the Trend Log for the fourth sensor (Sensor_4)

Backup Log Files - Alarm Log File ***(Service Terminal Interface only)***

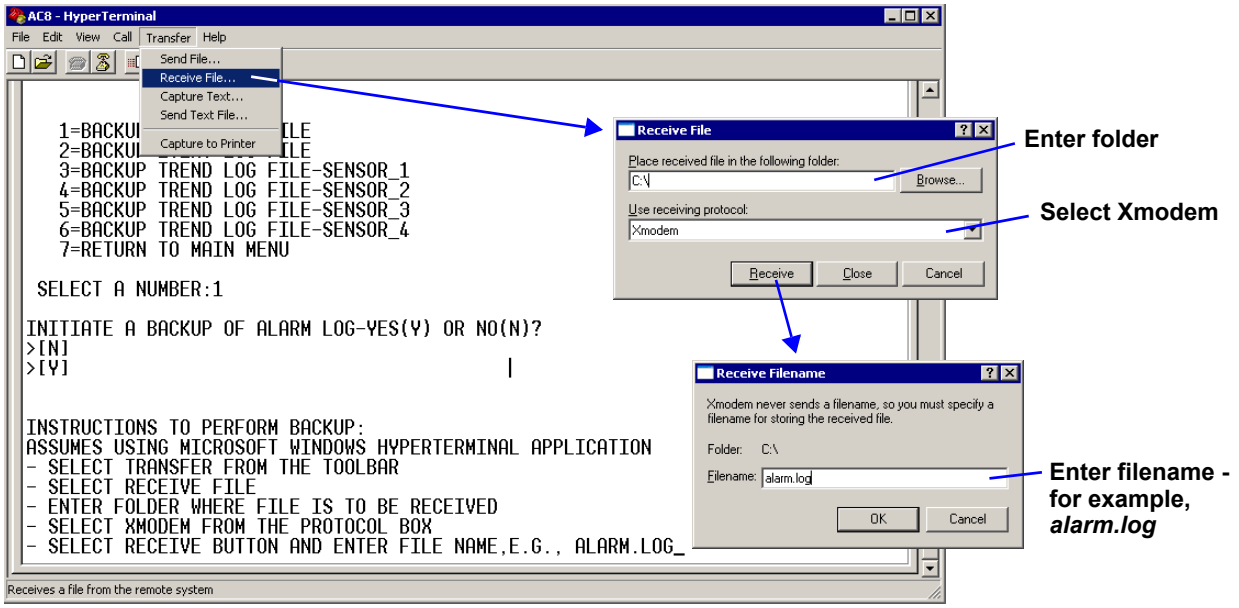
```
        BACKUP LOG FILES

 Backup alarm, event and trend log files


  1=BACKUP ALARM LOG FILE
  2=BACKUP EVENT LOG FILE
  3=BACKUP TREND LOG FILE-SENSOR_1
  4=BACKUP TREND LOG FILE-SENSOR_2
  5=BACKUP TREND LOG FILE-SENSOR_3
  6=BACKUP TREND LOG FILE-SENSOR_4
  7=RETURN TO MAIN MENU

SELECT A NUMBER:1
```

4. At the prompt to initiate a backup of the selected log file, enter **Y** (Yes - begin) or **N** (No - cancel), then press Enter. The current setting appears in brackets—[N] in the following example.

```
>INITIATE A BACKUP OF ALARM LOG-YES(Y) OR NO(N)?
>[N]
>[
```

NOTE
The following instructions refer to the Microsoft® Windows® HyperTerminal program. These steps may vary for other communications programs.

5. At the top of the HyperTerminal window, shown below, click on **Transfer**, then on **Receive File**.



6. In the Receive File window, as shown above:
   - In the Place Received File in the Following Folder box, enter the name and location of the folder where the configuration file should be placed—for example, **C:**—or click on the **Browse** button to locate the folder.
   - In the Use Receiving Protocol box, select **Xmodem** from the drop-down list.
   - Click on the **Receive** button. (To close the window without backing up the file, click on **Close** or **Cancel**.)
7. In the Receive Filename window, enter a name for the log file—**alarm.log** in the example above.
8. When the transfer is complete, a confirmation message appears in the Service Terminal Interface window: "Backup Successful."
9. The display returns to the Backup Log Files menu. You may choose another type of log file to back up (return to **Step 3**) or press **7** (or Escape) to return to the Main Menu.

After backing up a log file, you may want to delete all records in the AC8's log of that type. See **7.13 - Clear Alarms & Logs** for details.

7.0 SYSTEM AND CONTROL OPTIONS

NOTE
For ease of understanding, this section uses the LCD interface to illustrate most instructions, except for features that are available only through the Service Terminal Interface. All Service Terminal Interface screens appear in ***Appendix A - Service Terminal Interface****.*

The System and Control menu allows you to configure the AC8—setting up inputs and outputs and an input/output matrix to trigger actions, the modem and pagers, and system features such as date and time. This menu also provides a vehicle for manually changing the state of an output to ON or OFF, clearing active alarms and deleting records from the AC8's alarm log, event log and trend logs.

The arrows ↑↓ are used to scroll through the menu. The Enter ↵ key is used to select the menu item and enter new information. **Table 14** shows characters that may be entered in labels and values.

Table 14 Valid characters for data entry

Alphanumeric	Special characters
A-Z, 0-9	space [ ] ^ _ ! " # $ % & ( ) * + - / , . ; < = > @

The System and Control options require a password to prevent unauthorized users from making changes to the system.

This section presents step-by-step instructions for each of the following:

- **Login** - enter the password
- **Setup System** - configure inputs, outputs, modem, pagers, system features
- **Override Output** - manually override automatic control of outputs; release the override
- **Clear Alarms & Logs** - clear active alarms; delete records from the alarm, event and trend logs

NOTE
If an alarm occurs while a user is logged on, the LCD backlight will flash and the audible alarm will sound. To obtain specific information about the alarm, you must access the Active Alarm screen (see ***5.1 - View Active Alarms****) or the Alarm Log (see* ***5.2 - View Alarm Log****).*

7.1 Login

Users must enter a password to access any of the system and control options. The password consists of four characters (see **Table 14** for valid characters); the default password is AAAA. To set up or change the password, see **7.9.1 - Change Password**.

To log in:

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵, as shown at right.
- Use the arrows ↑↓ to choose **System and Control**, and press Enter ↵. The Login menu appears.
- To enter your password (the default is AAAA):
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

The System and Control Menu appears next, with these options that are described in the following sections:

- Setup System (**Section 7.2** - **Section 7.9**)
- Override Output (**Section 7.12**)
- Clear Alarms & Logs (**Section 7.13**)

Main Menu

```
  VIEW STATUS
> SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

↵

Login

```
        LOGIN

          AAAA
↑↓=SELECT ↵=NEXT/END
```

↵

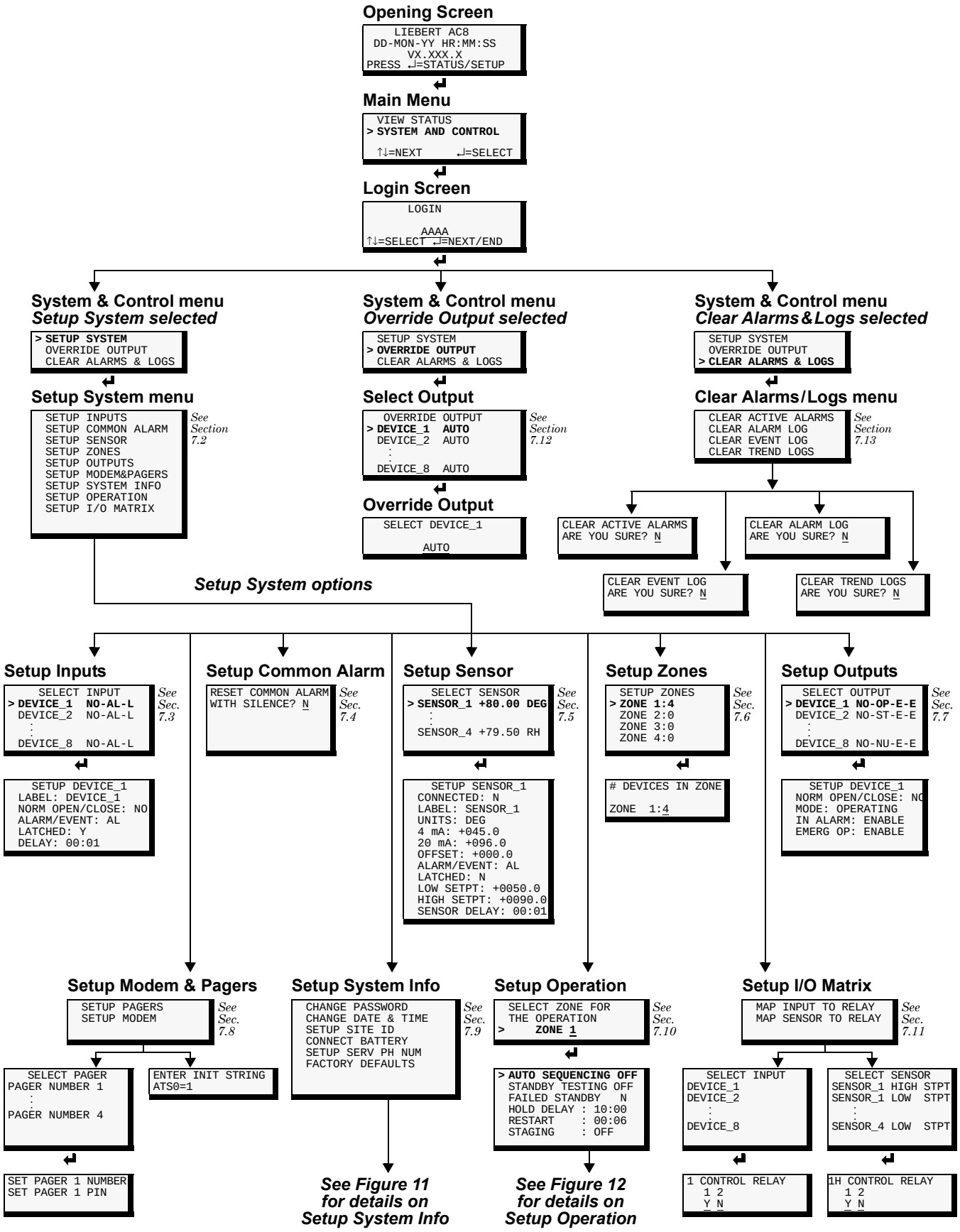
System & Control Menu

```
> SETUP SYSTEM
  OVERRIDE OUTPUT
  CLEAR ALARMS & LOGS
  ↑↓=NEXT  ↵=SELECT
```

NOTE
If, after logging in, you press the ESC key to return to a previous screen that is not password-protected, you must log in again, including entering your password if you wish to access password-protected functions.

Figure 10 shows the main options available from the System & Control menu.

Figure 10 Menu overview - System and Control menu



7.2 Setup System - Overview

The **Setup System** screen displays seven options that allow you to configure input and output devices and their relationships, the common alarm, the modem, pagers to be dialed when alarms occur, and a variety of system details, such as login password and system date and time:

- Setup Inputs
- Setup Common Alarm
- Setup Sensor
- Setup Zones
- Setup Outputs
- Setup Modem & Pagers
- Setup System Info
- Setup Operation
- Setup I/O Matrix

Setup System Menu

```
> SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

7.3 Setup System - Setup Inputs

The AC8 has eight digital input points that may be configured individually. These inputs may have a wide variety of Liebert or other manufacturers' equipment connected for monitoring.

To configure a digital input:

Select Input Menu

```
    SELECT INPUT
> DEVICE_1  NO-AL-L
  DEVICE_2  NO-AL-L
  ↑↓=NEXT   ↵=SELECT
  DEVICE_3  NO-AL-L
  DEVICE_4  NO-AL-L
  DEVICE_5  NO-AL-L
  DEVICE_6  NO-AL-L
  DEVICE_7  NO-AL-L
  DEVICE_8  NO-AL-L
```

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select a Digital Input to Configure

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Inputs** and press Enter ↵.
- From the Select Input Menu, choose the input you want—for example, **Device_1**—and press Enter ↵.

Table 15 shows the digital input features you may change, along with the default settings: you may change the name of the input, define it as Normally Open or Normally Closed, and specify it as alarmable or as an event.

- Alarmable inputs may be defined as either Unlatched or Latched.
- Event status allows you to monitor a digital input's state—and use a change in state to initiate an action through an output, if desired—without triggering an alarm. Events are always Unlatched.
- You may also specify a time delay before the AC8 responds to an alarm or event.

Use the steps following **Table 15** to change the default settings for any digital input.

Table 15 Default settings - digital inputs

Feature	Default	Other Options
LABEL	**DEVICE_1**	Any name (up to eight characters)
NORM OPEN/CLOSE	**NO** (Normally Open)	NC (Normally Closed)
ALARM/EVENT	**AL** (Alarmable)	EV (Event)
LATCHED	**L** (Latched) / Y (Yes)*	NL (Unlatched) / N (No)*
DELAY	**00:01** (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59

* **NOTE:** Different abbreviations are used to designate a digital input as Latched or Unlatched as shown below.

	Settings - Select Input Menu (see Section 7.3)	When configuring an input (see **Section 7.3.4**)
Unlatched	**NL** (Not Latched)	**N** (No, not latched)
Latched	**L** (Latched)	**Y** (Yes, latched)

7.3.1 Change Label (Name of Input)

Each input has a default label (Device_1, Device_2, etc.) that you may change to a more descriptive name for ease in recognizing alarms and events associated with the input. The label may consist of up to eight characters (see **Table 14** for valid characters).

The device name assigned through this menu is also displayed for the corresponding output.

Table 16 Input and output labels

Label	Applies to:	Label	Applies to:
Device_1	Input 1 and Output 1	Device_5	Input 5 and Output 5
Device_2	Input 2 and Output 2	Device_6	Input 6 and Output 6
Device_3	Input 3 and Output 3	Device_7	Input 7 and Output 7
Device_4	Input 4 and Output 4	Device_8	Input 8 and Output 8

Setup Inputs Menu

```
   SETUP DEVICE_1
> LABEL: DEVICE_1
  NORM OPEN/CLOSE: NO
  ALARM/EVENT: AL
  ↑↓=NEXT   ↵=SELECT
  LATCHED: Y
  DELAY: 00:01
```

Change Label

```
   CHANGE LABEL

      DEVICE_1
↑↓=SELECT ↵=NEXT/END
```

If the input label is changed, the output will change also.

- From the Setup Inputs Menu, choose **Label** for the selected input—**Label: Device_1** in the example above right—and press Enter ↵.
- To change the input's label, which may consist of up to eight characters:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

7.3.2 Define Input as Normally Open or Normally Closed

Each input may be set up as Normally Open (NO) or Normally Closed (NC). The default setting for all input points is NO (Normally Open).

If you require an input to be a supervised point, define the input as Normally Closed (NC).

- From the Setup Inputs Menu, choose **Norm Open/Close**, as shown at right, and press Enter ↵.
- To change the normal state for this input, use the arrows ↑↓ to choose **NO** (Normally Open) or **NC** (Normally Closed), then press Enter ↵.

Setup Inputs Menu

```
   SETUP DEVICE_1
  LABEL: DEVICE_1
> NORM OPEN/CLOSE: NO
  ALARM/EVENT: AL
  ↑↓=NEXT   ↵=SELECT
  LATCHED: Y
  DELAY: 00:01
```

Normally Open / Closed

```
  IS INPUT NORMALLY
  OPEN OR CLOSED? NO

  ↑↓=NO/NC     ↵=END
```

7.3.3 Define Input as Alarmable or Event

Each digital input may be defined as Alarmable (AL) or as an Event (EV).

- For a digital input defined as **alarmable**, the following alarm reactions occur when the status of the monitored input device changes: the LCD flashes, the audible horn sounds, configured pager numbers will be notified and a record is entered in the Alarm Log.
- For a digital input defined as an **event**, the status change is recorded in the Event Log.

For both types (alarmable and event), user setup determines output control—whether the device that changed status is disabled or kept in operating mode and whether a standby device is set to operate.

By default, all digital inputs are set up as AL (Alarmable).

- From the Setup Inputs Menu, choose **Alarm/Event**, as shown at right, and press Enter ↵.
- To change the type of digital input, use the arrows ↑↓ to choose **AL** (Alarmable) or **EV** (Event), then press Enter ↵.

Setup Inputs Menu

```
   SETUP DEVICE_1
  LABEL: DEVICE_1
  NORM OPEN/CLOSE: NO
> ALARM/EVENT: AL
  ↑↓=NEXT   ↵=SELECT
  LATCHED: Y
  DELAY: 00:01
```

Alarmable / Event

```
  IS INPUT AN ALARM
  OR EVENT? AL

  ↑↓=AL/EV     ↵=END
```

7.3.4 Set Up Alarmable Inputs in Latched or Unlatched Mode

Setup Inputs Menu

```
   SETUP DEVICE_1
 LABEL: DEVICE_1
 NORM OPEN/CLOSE: NO
 ALARM/EVENT: AL
 ↑↓=NEXT   ↵=SELECT
> LATCHED: Y
 DELAY: 00:01
```

Latched / Unlatched

```
 IS ALARM
 LATCHED? N

 ↑↓=Y/N       ↵=END
```

Alarmable input points may be set up in Latched mode (Y), which requires the user to clear the AC8 alarms after an alarm has occurred, or Unlatched mode (N), in which alarms will automatically clear after a return-to-normal state. The default setting for alarmable inputs is L (Latched).

Any input defined as an event is automatically Unlatched.

A digital input defined as Latched does not reset automatically after an alarm. It will remain in the *triggered* position even after the monitored device returns to normal. After an alarm, the user must manually reset Latched inputs, as described in **7.13.1 - Clear Active Alarms**. This also means that any digital outputs linked to a Latched digital input will *remain* triggered until the input is manually reset.

A digital input defined as Unlatched will automatically track the status of the monitored device. No action by the user is required.

- From the Setup Inputs Menu, choose **Latched**, as shown above right, and press Enter ↵.
- To change this feature, use the arrows ↑↓ to choose **Y** (Yes - Latched) or **N** (No - Unlatched), then press Enter ↵.

Message *(if input has been defined as an event)*

```
 LATCH NOT ALLOWED
 WHEN IN EVENT MODE

 ESC=BACK
```

NOTE: Only alarmable input points may be set up as Latched. Once an input is defined as an event, the Latched entry displays N/A. If you attempt to set up an event as Latched, the message shown at right appears. Press the ESC key to return to the previous screen to continue configuring the digital input.

The only way to reset latched alarms is by clearing active alarms. This step is required to return latched points to their normal state. For details, see **7.13.1 - Clear Active Alarms**.

7.3.5 Set Up Delay Time

Setup Inputs Menu

```
   SETUP DEVICE_1
 LABEL: DEVICE_1
 NORM OPEN/CLOSE: NO
 ALARM/EVENT: AL
 ↑↓=NEXT   ↵=SELECT
 LATCHED: N
 DELAY: 00:01
```

Delay Time

```
 DELAY TIME BEFORE
 TRIGGER?
    00 MIN : 01 SEC
 ↑↓=SELECT ↵=NEXT/END
```

Each input may be set up with a specified time delay between the occurrence of an alarm or event—a monitored device changes state—and any response by the AC8. This feature can prevent needless responses to transient conditions.

This delay is the amount of time that must elapse before the AC8 acknowledges the change of state in the monitored device and takes any further action, such as dialing configured pagers. The default time delay is 1 second (displayed as 00 MIN : 01 SEC).

The time delay applies only when a monitored device changes *from* its normal state—for example, the AC8 detects a closed contact that is defined as Normally Open.

When the monitored device *returns* to its normal state, the AC8 acknowledges the change of state immediately.

- From the Setup Inputs Menu, choose **Delay**, as shown at right, and press Enter ↵.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
  - For minutes (MIN), press and hold one of the arrow keys ↑↓ scroll through the numbers 00-99.
  - Press Enter ↵ to advance to seconds (SEC).
  - For seconds (SEC), press and hold one of the arrow keys ↑↓ scroll through the numbers 00-59.
  - When finished, press Enter ↵ again.

7.4 Setup System - Setup Common Alarm

The audible alarm sounds after the AC8 detects an alarm condition in any input that has been defined as alarmable, including digital and analog sensor inputs. Once the alarm is silenced, there are two options:

- By default, the common alarm remains energized until the input alarm is cleared.
- You may change this setting to de-energize the common alarm automatically once the alarm is silenced.

You might want to reset the common alarm with silence if an external alarm—for example, a horn—is connected to the common alarm output contacts.

You might not want to reset the common alarm contacts (let contacts reflect/track alarms) and simply silence the audible horn.

To change the common alarm setting:

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Change to Reset (Y) or Not Reset (N)

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Common Alarm** and press Enter ↵.
- By default, the common alarm is set up not to reset automatically when the alarm is silenced (N). To change this setting, use the arrows ↑↓ to choose **Y** (Yes - reset with silence) or **N** (No - not reset), then press Enter ↵.

Setup System Menu

```
  SETUP INPUTS
> SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

Reset Common Alarm

```
RESET COMMON ALARM
WITH SILENCE? N

↑↓=Y/N       ↵=END
```

7.5 Setup System - Setup Sensor

The AC8 has four analog sensor input points that may be configured individually. The panel monitors connected equipment for any 4-20 mA input—for example, temperature and humidity. Each sensor input is dedicated to a specific zone:

- Sensor_1 is for Zone 1
- Sensor_2 is for Zone 2
- Sensor_3 is for Zone 3
- Sensor_4 is for Zone 4

To configure a sensor:

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select a Sensor to Configure

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Sensor** and press Enter ↵.
- From the Select Sensor Menu, choose the sensor you want—for example, **Sensor_1**—and press Enter ↵.

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
> SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

↵

Select Sensor Menu

```
    SELECT SENSOR
> SENSOR_1 +80.00 DEG
  SENSOR_2 ------ DEG
  ↑↓=NEXT  ↵=SELECT
  SENSOR_3
  SENSOR_4 +79.50 RH
```

Table 17 shows sensor features that may be changed, along with the default settings. By default, sensor inputs are not connected.

To activate a sensor input, you must specify it as connected and enter corresponding values for 4 and 20 mA, as well as high and low setpoints. Other features that may be altered include the name of the sensor, the abbreviation for the units, and defining the sensor as alarmable or as an event.

- Alarmable sensors may be Latched (Y) or Unlatched (N).
- Event status allows you to monitor a sensor's high and low setpoints—and use those setpoints to change the status of an output, if desired—without triggering an alarm. Events are always Unlatched.
- You may also specify a time delay before the AC8 responds to an alarm or event.

Use the steps following **Table 17** to change the default settings for any analog sensor input.

Table 17 Default settings - analog sensor inputs

Feature	Default	Other Options
CONNECTED*	**N** (Not connected)*	Y (Connected)**
LABEL	**SENSOR_1**	Any name (up to eight characters)
UNITS	**DEG**	Any units (up to three characters)
4 mA	**+045.0**	Can define up to two decimal places—for example, -99.99
20 mA	**+096.0**	Can define up to two decimal places—for example, +99.99
OFFSET	**+000.0**	Can define up to two decimal places—for example, +00.00
ALARM/EVENT	**AL** (Alarmable)	EV (Event)
LATCHED	**N** (Unlatched)	Y (Latched)
LOW SETPT	**+0050.0**	Can define up to two decimal places—for example, -999.99
HIGH SETPT	**+0090.0**	Can define up to two decimal places—for example, +999.99
SENSOR DELAY	**00:01** (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59

* If a sensor is configured as N (Not connected), the display will show an empty reading (blank spaces).

** If a sensor is configured as Y (Connected) and is functioning properly, the display will show a reading. If the connected sensor is not functioning properly, the display will show dashes (------) indicating a problem.

7.5.1 Identify the Sensor as Connected

To make use of an analog sensor, you must specify it as Connected (Y). By default, analog sensors are Not connected (N).

Disconnecting a sensor will turn off staging for that sensor's zone if staging has been turned on for the zone (see **7.10.6 - Specify Staging** for details on staging).

- From the Setup Sensor Menu, choose **Connected**, as shown at right, and press Enter ↵.
- To change this feature, use the arrows ↑↓ to choose **Y** (Yes - Connected) or **N** (No - Not connected), then press Enter ↵.

Setup Sensor Menu

```
    SETUP SENSOR_1
> CONNECTED: N
  LABEL: SENSOR_1
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Sensor Connected

```
IS THE SENSOR
CONNECTED? N

↑↓=Y/N       ↵=END
```

7.5.2 Change Sensor Label (Name)

Each sensor has a default label (Sensor_1, Sensor_2, etc.) that you may change to a more descriptive name. The label may consist of up to eight characters (see **Table 14** for valid characters).

- From the Setup Sensor Menu, choose **Label** for the selected sensor—**Label: Sensor_1** in the example—and press Enter ↵.
- To change the sensor's label, which may consist of up to eight characters:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
> LABEL: SENSOR_1
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Change Sensor Label

```
CHANGE SENSOR LABEL

LABEL: ROOM TMP
↑↓=SELECT ↵=END
```

7.5.3 Change Units Label

For each sensor, you may use a three-character label to specify measurement units, such as DEG (see **Table 14** for valid characters).

- From the Setup Sensor Menu, choose **Units** for the selected sensor and press Enter ↵.
- To enter the units label, which may consist of up to three characters:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
> UNITS: DEG
  4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Change Units Label

```
CHANGE UNITS LABEL

UNITS: DEG
↑↓=SELECT ↵=NEXT/END
```

7.5.4 Change 4 mA Value

For the 4 mA value, enter the smallest value for the range of the sensor—for example, 50°F for a temperature sensor with a range of 50°F to 90°F.

The default value for each sensor is +045.0. Values that can be entered range from -999.9 to +999.9.

To enter a new value:

- From the Setup Sensor Menu, choose **4 mA** for the selected sensor and press Enter ↵.
- To change the 4 mA value:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
> 4 mA: +045.0
  20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Change 4 mA Value

```
CHANGE 4 mA VALUE

4 mA: +050.0
↑↓=SELECT ↵=NEXT/END
```

7.5.5 Change 20 mA Value

For the 20 mA value, enter the largest value for the range of the sensor—for example, 90°F for a temperature sensor with a range of 50°F to 90°F.

The default value for each sensor is +096.0. Values that can be entered range from -999.9 to +999.9.

To enter a new value:

- From the Setup Sensor Menu, choose **20 mA** for the selected sensor and press Enter ↵.
- To change the 20 mA value:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
> 20 mA: +096.0
  OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Change 20 mA Value

```
CHANGE 20 mA VALUE

20 mA: +090.0
↑↓=SELECT ↵=NEXT/END
```

7.5.6 Change Offset Value

For the Offset value, enter an adjustment factor—for example, if the sensor reading shows 70°F when the actual temperature is 75°F, the offset might be 5°F.

The default Offset value for each sensor is +000.0. Values that can be entered range from -999.9 to +999.9.

To enter a new value:

- From the Setup Sensor Menu, choose **Offset** for the selected sensor and press Enter ↵.
- To change the Offset value:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  20 mA: +090.0
> OFFSET: +000.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Change Offset Value

```
CHANGE OFFSET VALUE

OFFSET: +005.0
↑↓=SELECT ↵=NEXT/END
```

7.5.7 Define Sensor as Alarmable or Event

Each sensor may be defined as Alarmable (AL) or as an Event (EV).

- For a sensor defined as alarmable, the following alarm reactions occur when the high-setpoint threshold is crossed: the LCD flashes, the audible horn sounds, configured pager numbers will be notified and a record is entered in the Alarm Log.
- For a sensor defined as an event, the high-setpoint occurrence is recorded in the Event Log.

By default, all sensors are set up as AL (Alarmable).

- From the Setup Sensor Menu, choose **Alarm/Event**, as shown at right, and press Enter ↵.
- To change the type of sensor, use the arrows ↑↓ to choose **AL** (Alarmable) or **EV** (Event), then press Enter ↵.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  20 mA: +090.0
  OFFSET: +005.0
> ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Alarmable / Event

```
IS SENSOR AN ALARM
OR EVENT? AL

↑↓=AL/EV     ↵=END
```

7.5.8 Set Up Alarmable Sensors in Latched or Unlatched Mode

Alarmable sensor points may be set up in Latched mode (Y), requiring the user to clear the AC8 alarms after an alarm has occurred, or Unlatched mode (N), meaning that alarms will automatically clear after a return-to-normal state. The default setting for alarmable sensors is N (Unlatched). Any sensor defined as an event is automatically Unlatched.

A sensor defined as Latched does not reset automatically after an alarm. It will remain in the *triggered* position even after the monitored sensor returns to normal. After an alarm, the user must manually reset Latched sensors, as described in **7.13.1 - Clear Active Alarms**. This also means that any digital outputs linked to a Latched sensor will *remain* triggered until the sensor is manually reset.

A sensor defined as Unlatched will automatically track the status of the monitored sensor. No action by the user is required.

- From the Setup Sensor Menu, choose **Latched**, as shown at right, and press Enter ↵.
- To change this feature, use the arrows ↑↓ to choose **Y** (Yes - Latched) or **N** (No - Unlatched), then press Enter ↵.

NOTE: Only alarmable sensors may be set up as Latched. If you attempt to set up an event as Latched, the message shown at right appears. Press the ESC key to return to the previous screen to continue configuring the digital input.

The only way to reset latched alarms is by clearing active alarms. This step is required to return latched points to their normal state. For details, see **7.13.1 - Clear Active Alarms**.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  20 mA: +090.0
  OFFSET: +005.0
  ALARM/EVENT: AL
> LATCHED: N
  LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Latched / Unlatched

```
IS ALARM
LATCHED? N

↑↓=Y/N       ↵=END
```

Message *(if sensor has been defined as an event)*

```
  LATCH NOT ALLOWED
  WHEN IN EVENT MODE

  ESC=BACK
```

7.5.9 Change Low Setpoint

When the sensor detects a condition below the Low Setpoint value, an alarm or event will occur, depending on the sensor configuration.

The Low Setpoint value must not be set below the sensor's 4 mA value plus the offset value. For example, if the 4 mA value is 50°F and the Offset value is 5°F, the Low Setpoint must be 55°F or higher.

The default Low Setpoint for each sensor is +0050.0. Values that can be entered range from:

- the 4 mA value + the Offset value (in the example, 50+5=55)

  to

- the 20 mA value + the Offset value (in the example, 90+5=95)

To view or change these values, see **7.5.4 - Change 4 mA Value**, **7.5.5 - Change 20 mA Value** and **7.5.6 - Change Offset Value**.

To enter a new value:

- From the Setup Sensor Menu, choose **Low Setpt** for the selected sensor and press Enter ↵.
- To change the Low Setpoint:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  20 mA: +090.0
  OFFSET: +005.0
  ALARM/EVENT: AL
  LATCHED: N
> LOW SETPT: +0050.0
  HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Change Low Setpoint

```
CHANGE LOW SETPOINT

 LOW SETPT: +0060.0
↑↓=SELECT ↵=NEXT/END
```

7.5.10 Change High Setpoint

When the sensor detects a condition above the High Setpoint value, an alarm or event will occur, depending on the sensor configuration.

The High Setpoint value must not be set above the sensor's 20 mA value plus the offset value. For example, if the 20 mA value is 90°F and the Offset value is 5°F, the High Setpoint must be 95°F or lower.

The default High Setpoint for each sensor is +0090.0. Values that can be entered range from:

- the 4 mA value + the Offset value (in the example, 50+5=55)

  to

- the 20 mA value + the Offset value (in the example, 90+5=95)

To view or change these values, see **7.5.4 - Change 4 mA Value**, **7.5.5 - Change 20 mA Value** and **7.5.6 - Change Offset Value**.

To enter a new value:

- From the Setup Sensor Menu, choose **High Setpt** for the selected sensor and press Enter ↵.
- To change the High Setpoint:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Sensor Menu

```
    SETUP SENSOR_1
  CONNECTED: Y
  LABEL: ROOM_TMP
  ↑↓=NEXT  ↵=SELECT
  UNITS: DEG
  4 mA: +050.0
  20 mA: +090.0
  OFFSET:  +005.0
  ALARM/EVENT: AL
  LATCHED: N
  LOW SETPT: +0060.0
> HIGH SETPT: +0090.0
  SENSOR DELAY: 00:01
```

↵

Change High Setpoint

```
CHANGE HIGH SETPOINT

 HIGH SETPT: +0085.0
↑↓=SELECT ↵=NEXT/END
```

7.5.11 Set Up Delay Time

Each sensor may be set up with a specified time delay between the triggering of a high or low setpoint—a monitored sensor crosses the high or low setpoint threshold—and any response by the AC8. This feature can prevent transient conditions from prompting unnecessary responses.

This delay is the amount of time that must elapse before the AC8 acknowledges the change in the monitored sensor and takes any further action, such as dialing configured pagers. The default time delay is 1 second (displayed as 00 MIN : 01 SEC).

The time delay applies to the triggering of a high or low setpoint and also after the monitored sensor *returns* to its normal state. When the monitored device *returns* to its normal state, the specified time delay must elapse before the AC8 acknowledges the return-to-normal condition.

Setup Sensor Menu

```
   SETUP SENSOR_1
CONNECTED: Y
LABEL: ROOM_TMP
↑↓=NEXT  ↵=SELECT
UNITS: DEG
4 mA: +050.0
20 mA: +090.0
OFFSET: +005.0
ALARM/EVENT: AL
LATCHED: N
LOW SETPT: +0060.0
HIGH SETPT: +0085.0
SENSOR DELAY: 00:01
```

Delay Time

```
DELAY TIME BEFORE
TRIGGER?
  00 MIN : 01 SEC
↑↓=SELECT ↵=NEXT/END
```

- From the Setup Sensor Menu, choose **Sensor Delay**, as shown at right, and press Enter ↵.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
  - For minutes (MIN), press and hold one of the arrow keys ↑↓ scroll through the numbers 00-99.
  - Press Enter ↵ to advance to seconds (SEC).
  - For seconds (SEC), press and hold one of the arrow keys ↑↓ scroll through the numbers 00-59.

7.6 Setup System - Setup Zones

The AC8 has four zones that may be used to define different areas—rooms or sections of a room. If set up with four zones, the AC8 effectively performs as four separate units, controlling each zone separately, for example, using a different rotation sequence for devices in each zone.

A single zone may have one to eight outputs associated with it. The minimum number of outputs per zone is one, and the maximum for all zones combined is eight.

By default, the AC8 is configured to have one zone with four outputs: Zone 1 has four associated outputs and Zones 2-4 have none.

To set up zones:

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
> SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

Setup Zones

```
  SETUP ZONES
> ZONE 1:4
  ZONE 2:0
  ↑↓=NEXT   ↵=SELECT
  ZONE 3:0
  ZONE 4:0
```

Number of Devices

```
  # DEVICES IN ZONE

  ZONE  1:4
↑↓=SELECT ↵=NEXT/END
```

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select Setup Zones

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Zones** and press Enter ↵.

7.6.1 Set Up a Zone

- From the Setup Zones Menu, choose a zone—for example, **Zone 1**—and press Enter ↵.
- In the Number of Devices screen, use the arrows ↑↓ to select the number of outputs for this zone, then press Enter ↵. The example at right shows four outputs in **Zone 1**.

Guidelines for Setting Up Zones

- **The AC8 assigns outputs to zones in numerical order,** based on entries in the Number of Devices screen. For example:

Example	Zone 1	Zone 2	Zone 3	Zone 4
If the Number of Devices is:	4	2	2	(none)
The AC8 assigns these outputs to this zone:	Outputs 1-4	Outputs 5-6	Outputs 7-8	(none)

- **The total number of outputs for all zones cannot exceed 8.** If you try to enter more than 8 devices in total, **Message 1** appears (shown at right). Press Escape to return to the Setup Zones menu.
- **Zones must be set up in order, starting with Zone 1.** If you try to enter devices for Zone 2 before Zone 1 has any outputs, **Message 2** appears (shown at right). Press Escape and set up Zone 1 before attempting to set up Zone 2.
- **Remove outputs in descending order, ending with Zone 1.** If you try to remove all devices from Zone 1 before Zone 2, **Message 3** appears (shown at right). Press Escape and remove devices from Zone 2 before removing devices from Zone 1.

MESSAGES:

1. Total devices > 8

```
TOO MANY DEVICES
ESC BACK
```

2. Previous zone has no devices

```
USE ZONE_BEFORE
ESC BACK
```

3. Subsequent zone has devices

```
ZERO ZONE_AFTER
ESC BACK
```

Table 18 shows the default number of outputs for each zone.

Table 18 Default zones

Zone	Default number of outputs
Zone 1	4 (Outputs 1-4)
Zone 2	0
Zone 3	0
Zone 4	0

7.7 Setup System - Setup Outputs

The AC8 has eight outputs that may be configured individually. These outputs correspond to the eight numbered inputs. For example, Device_1 is the unit connected to Input 1 and to Output 1.

The output name is the same as the input name, as described in **7.3.1 - Change Label (Name of Input)**.

To configure an output:

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select an Output to Configure

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Outputs** and press Enter ↵.
- From the Select Output Menu, choose an output—for example, **Device_1**—and press Enter ↵.

Table 19 shows digital output features and their default settings: you may define an output as Normally Open or Normally Closed, set the device's mode—operating, standby or not used—and specify whether to disable the device during emergency power operation.

Use the steps following **Table 19** to change the default settings for any digital output.

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
> SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

Select Output Menu

```
     SELECT OUTPUT
> DEVICE_1  NO-OP-E-E
  DEVICE_2  NO-ST-E-E
  ↑↓=NEXT   ↵=SELECT
  DEVICE_3  NO-ST-E-E
  DEVICE_4  NO-ST-E-E
  DEVICE_5  NO-NU-E-E
  DEVICE_6  NO-NU-E-E
  DEVICE_7  NO-NU-E-E
  DEVICE_8  NO-NU-E-E
```

Table 19 Default settings - digital outputs

Feature	Default	Other Options
NORM OPEN/CLOSE	**NO** (Normally Open)	NC (Normally Closed)
MODE*	Outputs 1-2: **OP** (Operating) Outputs 3-4: **ST** (Standby) Outputs 5-8: **NU** (Not Used)	OP (Operating) ST (Standby) NU (Not Used)
IN ALARM	**E** (Enable)	D (Disable)
EMERG OP	**E** (Enable)	D (Disable)

* Outputs defined as Not Used should be kept in a separate zone that does not include any outputs defined as Operating or Standby. The Auto Sequencing feature will not function properly in a zone with outputs defined as Not Used. See **7.10.1 - Turn Automatic Sequencing On or Off** for more information.

7.7.1 Define Output as Normally Open or Normally Closed

Each output may be set up as Normally Open (NO) or Normally Closed (NC). The default setting for all output points is NO (Normally Open).

- From the Setup Outputs Menu, shown at right, use the arrows ↑↓ to choose **Norm Open/Close** and press Enter ↵.
- To change the normal state for this output, use the arrows ↑↓ to choose the state:
  - **NO** (Normally Open)
  - **NC** (Normally Closed)
- Press Enter ↵.

Setup Outputs Menu

```
    SETUP DEVICE_1
> NORM OPEN/CLOSE: NO
  MODE: OPERATING
  ↑↓=NEXT   ↵=SELECT
  IN ALARM: ENABLE
  EMERG OP: ENABLE
```

Change State

```
SET TO NORMAL OPEN
OR NORMAL CLOSE? NO

↑↓=NO/NC     ↵=END
```

7.7.2 Define Operating or Standby Mode

Each output may be defined as Operating (OP), Standby (ST), or Not Used (NU). This setting takes precedence over any setting in the override menu (see **7.12 - Override Output**). The default settings are:

- Outputs 1 and 2 are in Operating (OP) mode
- Outputs 3 and 4 are in Standby (ST) mode
- Outputs 5 through 8 are in Not Used (NU)

To change the mode:

- From the Setup Outputs Menu, shown at right, use the arrows ↑↓ to choose **Mode** for the selected output and press Enter ↵.
- To change the output's mode, use the arrows ↑↓ to choose one of these options:
  - **OP** (Operating)
  - **ST** (Standby)
  - **NU** (Not Used)
- Press Enter ↵.

Setup Outputs Menu

```
    SETUP DEVICE_1
  NORM OPEN/CLOSE: NO
> MODE: OPERATING
  ↑↓=NEXT   ↵=SELECT
  IN ALARM: ENABLE
  EMERG OP: ENABLE
```

Set Mode

```
SET MODE: OP

↑↓=OP/ST/NU  ↵=EDIT
```

7.7.3 Enable or Disable an Output Device in Alarm Status

You may choose whether to Enable or Disable an output when the connected device is in alarm status. The default setting for all output points is Enabled. If Enabled, the device stays enabled when in alarm status. If Disabled, the device is disabled when it goes into alarm.

- From the Setup Outputs Menu, choose **In Alarm**, as shown at right, and press Enter ↵.
- To make a change, use the arrows ↑↓ to choose **Enable** or **Disable** to determine what happens when an alarm is detected in the device.
- Press Enter ↵.

Setup Outputs Menu

```
    SETUP DEVICE_1
  NORM OPEN/CLOSE: NO
  MODE: OPERATING
  ↑↓=NEXT   ↵=SELECT
> IN ALARM: ENABLE
  EMERG OP: ENABLE
```

Change State in Alarm

```
IN ALARM: DISABLE

↑↓=E/D   ↵=EDIT
```

7.7.4 Enable or Disable a Device during Emergency Power Operation

You may choose whether to Enable or Disable an output when the AC8 is in emergency power operation. The default setting for all output points is Enabled.

- From the Setup Outputs Menu, choose **Emerg Op**, as shown at right, and press Enter ↵.
- To make a change, use the arrows ↑↓ to choose **Enable** or **Disable** to specify what occurs in emergency power operation.
- Press Enter ↵.

Setup Outputs Menu

```
    SETUP DEVICE_1
  NORM OPEN/CLOSE: NO
  MODE: OPERATING
  ↑↓=NEXT   ↵=SELECT
  IN ALARM: ENABLE
> EMERG OP: ENABLE
```

Change State in Emerg Op

```
EMERG OP: DISABLE

↑↓=E/D   ↵=EDIT
```

7.7.5 Configure Output for Loss of Power ("Fail-Safe")

Each output has an associated jumper that can help prevent undesired effects when the controller board loses power. For example, without the proper fail-safe jumper setting, a loss of power might close a switch that is Normally Open (NO)—perhaps shutting off an environmental unit or a fan or closing a valve.

This fail-safe jumper setting is unrelated to configuring an output as Normally Open (NO) or Normally Closed (NC), as described in **7.7.1 - Define Output as Normally Open or Normally Closed**.

To configure a digital output jumper for a loss of power:

- Set the jumper in the "OFF" position *(factory default)* to make the output Normally Open (NO).
- Set the jumper in the "ON" position to make the output Normally Closed (NC).

For more information, see **3.2.3 - Setting the Digital Output Jumpers**.

7.8 Setup System - Setup Modem & Pagers

To use the modem and pager features, be sure to connect the phone line connector to a telephone wall jack using an RJ11 cord, as described in **3.6.2 - Phone Line Connector**.

7.8.1 Modem Setup - Initialization String

The AC8 has an on-board modem that offers dial-up access to all LCD functions as well as features available only through the Service Terminal Interface (see **A.1 - Comparison of Functions: LCD and Service Terminal Interface**). The modem also permits remote notification of alarms.

Supported Modem Settings

Supported settings vary for different types of access:

Table 20 Supported modem settings

For:	Modem supports:
Dial-up via terminal	9600 baud, no parity, 8 data bits, 1 stop bit
Pager access	9600 baud, even parity, 7 data bits, 1 stop bit and TAPI protocol version 1.8
International dialing	For calls involving countries that do not support country code B5 (see **Table 22**): • Modem model MT5600SMI is required (model number is on the modem label). • **+GCI=xx** (xx is the country code) must be added to the initialization string (see **Step 7** in this section).

Default Modem Settings

Table 21 shows the default settings for modem options.

Table 21 Default settings - modem

Feature	Default	Other Options
Initialization String (Init String)	**ATS0=1**	Any string (up to 40 characters); for international dialing, add **+GCI=xx**, where **xx** is the country code (except B5 countries—see **Table 22**)
Enable Modem Diagnostic Messages	**N** (disable)	Y (enable)
Modem Dial Prefix	**ATE0X4DT**	Any string
Modem Hang Up Delay After a Call	**10** seconds	Any number (up to 99 seconds)

Configuring the Modem

To configure the modem:

Log In and Choose Setup System

1. From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
2. Enter your password at the Login screen.
3. From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select Modem Setup

4. From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Modem&Pagers** and press Enter ↵.
5. Use the arrows ↑↓ to choose **Setup Modem** from the Pagers & Modem Menu and press Enter ↵.
6. The Setup Modem Menu displays the initialization string (Init String), which may consist of up to 40 characters (see **Table 14** for valid characters). The default Init String is **ATS0=1**.

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
> SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

↵

Pagers & Modem Menu

```
  SETUP PAGERS
> SETUP MODEM

  ↑↓=NEXT   ↵=SELECT
```

↵

Setup Modem Menu

```
  ENTER INIT STRING
ATS0=1

  ↑↓=NEXT  ↵=SELECT
```

International Dialing

7. To enable international dialing involving countries that do not support country code B5 (see **Table 22**), you must add the appropriate country codes to the initialization string using the format:

   +GCI=xx

   where **xx** is the country code.

   (This also requires the modem model MT5600SMI; the model number can be found on the modem label.)

   Note: For countries that support B5, there is no need to add country codes to the init string.

Table 22 Country codes

Country	Code*	Country	Code*	Country	Code*	Country	Code*
Argentina	07	Finland	FD	Italy	FD	Philippines	B5
Australia	09	France	FD	Japan	00	Portugal	FD
Austria	FD	Germany	FD	Korea	B5	Slovak Republic	FD
Belgium	FD	Greece	FD	Liechtenstein	FD	Spain	FD
Canada	B5	Hong Kong	99	Luxembourg	FD	Sweden	FD
China	B5	Hungary	FD	Mexico	B5	Switzerland	FD
Cyprus	FD	Iceland	FD	Netherlands	FD	Taiwan	FE
Czech Republic	FD	Indonesia	99	New Zealand	7E	United Kingdom	FD
Denmark	FD	Ireland	FD	Norway	FD	United States	B5

* B5 is the default setting—initialization string **+GCI=xx** is not needed for these countries

Edit the Init String

8. To enter or edit the Init String:
   - Use the arrows ↑↓ to choose a character.
   - Press Enter ↵ to advance to the next character position.
   - When finished, press Enter ↵ again.

7.8.2 Modem Setup - Additional Features *(Service Terminal Interface only)*

The Service Terminal Interface offers four additional options for the modem that are not available through the LCD interface:

- Enter AC8 phone number
- Enable modem diagnostic messages
- Change modem dial prefix
- Change modem hang up delay after a call

To access these options:

- Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **0** (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter **6** (Setup Modem&Pagers).
- At the Setup Modem & Pagers menu, shown below, enter **5** to begin configuration.

Setup Modem & Pagers - Modem Setup ***(Service Terminal Interface only)***

```
  SETUP MODEM&PAGERS

    Input pager and
    modem information

  Select pager or modem
                                CURRENT NUMBER
                                                    ******************
   1=PAGER NUMBER 1                                 An "A" is required
   2=PAGER NUMBER 2                                 as 1st character
   3=PAGER NUMBER 3                                 for an alpha pager,
   4=PAGER NUMBER 4                                 an "N" for a numeric
   5=MODEM CONFIGURATION                            pager, and an "M"
   6=RETURN TO SETUP MENU                           for a remote modem.
   7=RETURN TO MAIN MENU                            ******************

 SELECT A NUMBER:5
```

- At the Change Modem Initialization String prompt, you may press Enter to bypass this option (or see **7.8.1 - Modem Setup - Initialization String** for instructions on entering the string).

```
>CHANGE MODEM INITIALIZATION STRING(40 CHARACTERS MAX).
>[ATS0=1]
>[
>COMMAND SUCCESSFUL
```

Enter AC8 Phone Number

This entry allows you to store the phone number that must be dialed to access the AC8 for future reference. This has no effect on the AC8's modem settings or functionality—it simply places the phone number in an accessible location.

- At the AC8 Phone Number prompt, enter the phone number for the AC8. The current setting appears in brackets []—nothing has been entered in the following example.

```
>ENTER AC8 PHONE NUMBER(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: "Command Successful."

Enable Modem Diagnostic Messages

Enabling modem diagnostics will provide the following additional information about the modem to the computer using the Service Terminal Interface:

Hang-up modem

Modem model number

No dial tone

No carrier

Busy

No answer

Pager checksum error

Pager pin number error

Error (indicates incorrect phone number, dial prefix or modem initialization string)

For alphanumeric pager failures:

Paging company non answer on 1st

Paging company non answer on 2nd

Paging company non answer on Last

Paging company non answer on Handshake

- At the Enable Modem Diagnostic Messages prompt, enter **Y** (Yes - enable) or **N** (No - disable). The current setting appears in brackets—[N] in the following example.

```
>ENABLE MODEM DIAGNOSTIC MESSAGES-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

Change Modem Dial Prefix

- At the Change Modem Dial Prefix prompt, enter the prefix to be dialed. The current setting appears in brackets—[ATE0X4DT] in the following example.

```
>CHANGE MODEM DIAL PREFIX.
>[ATE0X4DT]
>[
>COMMAND SUCCESSFUL
```

- For international dialing involving countries that do not support B5 (see **Table 22**), add country codes to the initialization string using the format **+GCI=xx**, where **xx** is the country code. (Note: Also requires MT5600SMI modem; model number is on modem label.)

  See **7.8.1 - Modem Setup - Initialization String** for more information.

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

Change Modem Hang Up Delay After a Call

- At the Change Modem Hang Up Delay After a Call prompt, enter the number of seconds to delay hanging up after a call. The maximum is 99 seconds. The current setting appears in brackets—[10] in the following example.

```
>CHANGE MODEM HANG UP DELAY AFTER A CALL(99 SEC MAX).
>[10]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: “Command Successful.”

7.8.3 Pager Setup - Pager Number and PIN

The AC8 may be configured to dial numeric or alphanumeric pagers when an alarm is detected. You may enter up to four pager numbers—all configured pagers will be dialed each time an alarm occurs. For each configured pager, you must enter the pager number to be dialed and the pager's Personal Identification Number (PIN).

See **8.1 - AC8 Specifications** for supported pager settings.

The AC8 can send numeric or alphanumeric messages to supported pagers, as shown in the following example:

Alphanumeric pager message example

```
LIEBERT TEST
DEVICE_1 ALARM
CONTACT CLOSED
        2:07 PM  06/09/04
```

← **Pager company time stamp**

When an alarm is detected, the first pager number is dialed—up to three times, if needed. After a successful page or three dialing attempts, the next pager number is dialed, again with three attempts as needed, and so on for all configured pagers.

Table 23 Pager dialing results

Result of Page	Action	Message Generated
Successful	AC8 dials next configured pager.	—
Unsuccessful due to:		
Busy signal / no answer / no dial tone	AC8 generates message after all three redial attempts have failed, dials next configured pager.	*Unsuccessful Page* (Event Log)
General modem communication problem	AC8 resets modem, generates message, redials pager up to three more times.	*Modem Reset* (Event Log)
No communication with modem (internal hardware problem)	AC8 generates messages, makes no further dialing attempts.	*Modem Internal Fault* (Active Alarm Report, Alarm History Log)

To configure a pager:

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select a Pager to Configure

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Modem&Pagers** and press Enter ↵.
- Use the arrows ↑↓ to choose **Setup Pagers** from the Pagers & Modem Menu, and press Enter ↵.
- From the Select Pager Menu, choose the pager number you want—for example, **Pager Number 1**—and press Enter ↵.

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
> SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

↵

Pagers & Modem Menu

```
> SETUP PAGERS
  SETUP MODEM

  ↑↓=NEXT   ↵=SELECT
```

↵

Select Pager Menu

```
     SELECT PAGER
> PAGER NUMBER 1
  PAGER NUMBER 2
  ↑↓=NEXT  ↵=SELECT
  PAGER NUMBER 3
  PAGER NUMBER 4
```

Enter a Pager Number

- From the Setup Pager Menu, choose **Setup Pager Number** for the selected pager—**Setup Pager 1 Number** in the example at right—and press Enter ↵.
- See **Table 24** for guidelines on entering the pager number, which may consist of up to 40 characters. To enter the pager number:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Pager Menu

```
> SET PAGER 1 NUMBER
  SET PAGER 1 PIN
  ↑↓=NEXT   ↵=SELECT
```

Pager # - Numeric

```
ENTER PAGER 1 NUMBER
N1,8005551212,,,,123
4567#
  ↑↓=SELECT ↵=NEXT/END
```

Pager # - Alphanumeric

```
ENTER PAGER 1 NUMBER
A9W18005551212
  ↑↓=SELECT ↵=NEXT/END
```

Table 24 Guidelines for dialing pagers

Device type	Required entries	Example
Numeric pager	The first character must be "**N**".	**N**18005551212
Alphanumeric pager	The first character must be "**A**".	**A**18005551212
Remote modem	The first character must be "**M**".	**M**18005551212
Device type	**Optional entries**	**Example**
All types of devices	Use "**9**" if needed to access an outside line—place after first character (N, A or M).	A**9**18005551212
	Use "**W**" to wait for a second dial tone before dialing if the phone system has two dial tones (initial tone and a second tone for outside line)—place after "9" (before the number to be dialed).	A9**W**18005551212
	Use "**,**" (comma) to pause two seconds.	N1**,**8005551212
Numeric pager	Use "**#**" as the last character to terminate page string if required by paging company.	N18005551212 ,,,,1234567**#**

Enter a Pager PIN Number

- From the Setup Pager Menu, choose **Setup Pager PIN**, as shown for Pager Number 1 in the example at right, and press Enter ↵.
- To enter the pager PIN, which may consist of up to 20 characters (see **Table 14** for valid characters):
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup Pager Menu

```
  SET PAGER 1 NUMBER
> SET PAGER 1 PIN
  ↑↓=NEXT   ↵=SELECT
```

Enter Pager PIN

```
 ENTER PAGER 1 PIN

01234567891011121314
  ↑↓=SELECT ↵=NEXT/END
```

NOTE

*For international dialing, you might need to add country codes in the modem initialization string. See **7.8.1 - Modem Setup - Initialization String**.*

7.8.4 Pager Setup - Communications Check *(Service Terminal Interface only)*

The Service Terminal Interface offers two additional options for pager setup, which are not available through the LCD interface:

- Enable communications check
- Enter time to perform communications check

To access these options:

- Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **0** (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter **6** (Setup Modem&Pagers).
- At the Setup Modem & Pagers menu, shown below, enter a number (**1**-**4)** to select a pager.

Setup Modem & Pagers - Pager Setup ***(Service Terminal Interface only)***

```
SETUP MODEM&PAGERS

  Input pager and
  modem information

Select pager or modem
                              CURRENT NUMBER
                                                  ******************
 1=PAGER NUMBER 1                                 An "A" is required
 2=PAGER NUMBER 2                                 as 1st character
 3=PAGER NUMBER 3                                 for an alpha pager,
 4=PAGER NUMBER 4                                 an "N" for a numeric
 5=MODEM CONFIGURATION                            pager, and an "M"
 6=RETURN TO SETUP MENU                           for a remote modem.
 7=RETURN TO MAIN MENU                            ******************

SELECT A NUMBER:1
```

- At the Enter Pager Number prompt, you may press Enter to bypass this option (or see **7.8.3 - Pager Setup - Pager Number and PIN** for instructions on entering the pager number).

```
>ENTER PAGER NUMBER(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL
```

- At the Enter Pager PIN Number prompt, you may press Enter to bypass this option (or see **7.8.3 - Pager Setup - Pager Number and PIN** for instructions on entering the pager PIN).

```
>ENTER PAGER PIN NUMBER (20 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL
```

Enable Communications Check

Enabling this function permits a daily communications test between the AC8 and the selected pager. Once each day the AC8 dials the pager at a specified time and sends this message: "AC8 COMM CHECK." (The time of the test is specified at the next prompt, **Enter Time To Perform Communications Check**.)

- At the Enable Communications Check prompt, enter **Y** (Yes - enable) or **N** (No - disable). The current setting appears in brackets—[N] in the following example.

```
>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: "Command Successful."

Enter Time To Perform Communications Check

This function schedules the daily communications test between the AC8 and the selected pager, as described in the previous section.

- At the Enter Time To Perform Communications Check prompt, enter the time to initiate the communications check, using the format HH:MM (hours and minutes in military time), ranging from 00:00 for midnight to 23:59 for 11:59 p.m. The current setting appears in brackets—[00:00] in the following example.

```
>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM).
>[00:00]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: "Command Successful."

7.9 Setup System - Setup System Info

The Setup System Info options allow users to:

- **Change Password**—used for access to system setup functions
- **Change Date & Time/Automatic Daylight Saving Time**—used to set the AC8's date and time and to enable automatic time change for Daylight Saving Time
- **Setup Site ID**—the AC8's location to differentiate among sites if more than one AC8 is in use
- **Connect Battery**—stops the AC8 battery from backing up the panel
- **Backup and Upload Configuration File *(Service Terminal Interface only)***—permits the user to copy the AC8's configuration settings and to upload the file to the AC8
- **Setup Serv Ph Num—**enables alarm notification to the telephone number entered (in addition to the four pager numbers).
- **Restore Defaults—**returns the AC8 to its factory settings
- **Perform Firmware Update *(Service Terminal Interface only)***—changes the AC8's firmware to newest version
- **Initiate Remote Alarm Test *(Service Terminal Interface only)***—used to test auxiliary alarm

To change any Setup System Info features:

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select Setup System

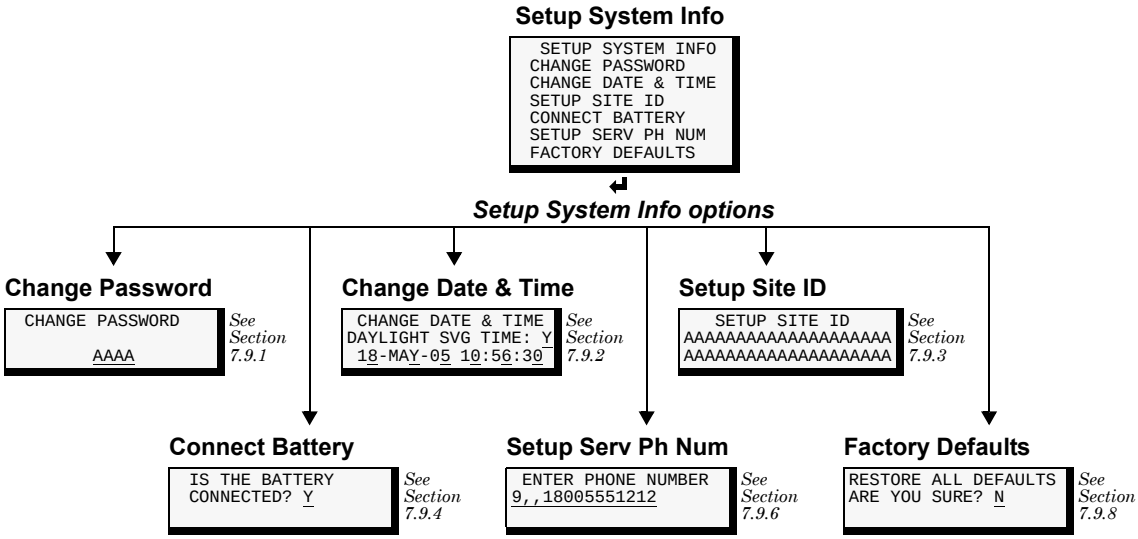
- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup System Info** and press Enter ↵.
- Use the steps following **Figure 11** to access any of the Setup System Info options.

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
> SETUP SYSTEM INFO
  SETUP OPERATION
  SETUP I/O MATRIX
```

Figure 11 offers a quick look at the Setup System Info screens available via the LCD interface.

Figure 11 Menu overview - Setup System Info menu



7.9.1 Change Password

A password is required to access the AC8's system and control options, as described in **7.1 - Login**. The password consists of four characters (see **Table 14** for valid characters). The default password is AAAA.

Setup System Info Menu

```
  SETUP SYSTEM INFO
> CHANGE PASSWORD
  CHANGE DATE & TIME
  ↑↓=NEXT  ↵=SELECT
  SETUP SITE ID
  CONNECT BATTERY
  SETUP SERV PH NUM
  FACTORY DEFAULTS
```

↵

Change Password

```
  CHANGE PASSWORD

         AAAA
↑↓=SELECT ↵=NEXT/END
```

Change the Password

To change the password:

- From the Setup System Info Menu, use the arrows ↑↓ to choose **Change Password**, then press Enter ↵.
- To change your password:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Reset Password to the Factory Default ("AAAA")

To reset the password to the factory default of AAAA:

- Locate DIP switch 1 on the unit's circuit board (see **1.7 - Controller Board Overview**) and move all switches to the OFF position (down).
- Move the second switch to the ON position, then to the OFF position.
- Move the seventh switch to the ON position, then to the OFF position.
- Move the eighth switch to the ON position, then to the OFF position.

The password should now be AAAA.

7.9.2 Change Date & Time/Automatic Daylight Saving Time

The AC8 has a built-in real-time clock that is backed up by an encapsulated lithium battery and set up to adjust automatically for daylight saving time twice a year. The Setup System Info menu allows you to change the date or time or automatic adjustment at any time.

To change the daylight saving time setting, date or time:

Setup System Info Menu

```
  SETUP SYSTEM INFO
  CHANGE PASSWORD
> CHANGE DATE & TIME
  ↑↓=NEXT  ↵=SELECT
  SETUP SITE ID
  CONNECT BATTERY
  SETUP SERV PH NUM
  FACTORY DEFAULTS
```

↵

Change Date & Time

```
 CHANGE DATE & TIME
DAYLIGHT SVG TIME: Y
 18-MAY-05 10:56:30
↑↓=SELECT ↵=NEXT/END
```

- From the Setup System Info Menu, use the arrows ↑↓ to choose **Change Date & Time**, then press Enter ↵.
- To change the daylight saving time setting:
  - To the right of **Daylight Svg Time?** use the arrows ↑↓ to choose **Y** (Yes - automatically adjust for daylight saving time) or **N** (No), then press Enter ↵.
- The format of the date and time is **DD-MMM-YY HR:MM:SS**. To change the date or time:
  - Press Enter ↵ to advance to the next character position you want to change.
  - Use the arrows ↑↓ to choose from available entries:

Date	Day (DD)	0-31
	Month (MMM)	JAN-DEC
	Year (YY)	00-99
Time	Hour (HR)	00-23
	Minutes (MM)	00-59
	Seconds (SS)	00-59

  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

7.9.3 Setup Site ID

Setup System Info Menu

```
  SETUP SYSTEM INFO
  CHANGE PASSWORD
  CHANGE DATE & TIME
  ↑↓=NEXT  ↵=SELECT
> SETUP SITE ID
  CONNECT BATTERY
  SETUP SERV PH NUM
  FACTORY DEFAULTS
```

You may enter a Site ID to identify the AC8's location, using a name that may consist of up to 40 characters (see **Table 14** for valid characters). The Site ID will appear with each alarm.

To enter or change the Site ID:

- From the Setup System Info Menu, use the arrows ↑↓ to choose **Setup Site ID**, then press Enter ↵.
- To enter a Site ID:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - If the Site ID is less than 40 characters, you may enter an underscore (_) character to indicate the end of the name.
  - When finished, press Enter ↵ again.

Setup Site ID

```
  SETUP SITE ID
AAAAAAAAAAAAAAAAAAAA
AAAAAAAAAAAAAAAAAAAA
↑↓=SELECT ↵=NEXT/END
```

7.9.4 Connect Battery

By default, the AC8 checks the battery and sounds an alarm when the power fails, the battery runs low or the battery needs to be checked. The battery's main purpose is to provide enough power to the modem to notify pagers of a power loss.

NOTE

The battery will continue to power and provide full operation of the AC8 with the exception of powering the analog inputs (sensors). The battery will provide backup for a minimum of 10 minutes.

Using the following procedure to disconnect the battery will disable battery alarm features only. The battery itself will continue to provide backup. If battery backup is not desired, the battery must be unplugged from the circuit board. This can be done by removing the battery leads from the jumpers (see **2.4.2 - Connecting the Battery Pack**).

The default is to connect the battery. However, there may be times that you want to disconnect the battery so that it does not provide backup.

Table 25 shows battery problems that will affect operation.

Table 25 Battery alarms

Result of Battery	Action	Message Generated
Battery falls below a minimum charge.	Battery will not provide battery backup.	LOW BATTERY
Battery is connected to the circuit board but not recognized by the circuit board.	Battery will not provide battery backup.	CHECK BATTERY
Battery is unplugged from the circuit board.	Battery will not provide battery backup	BATTERY UNPLUGGED
Utility power (24VAC) to the circuit board is too low to power the board.	AC8 board will not be able to function properly.	LOSS OF POWER

To connect or disconnect the battery:

- From the Setup System Info Menu, use the arrows ↑↓ to choose **Connect Battery**, then press Enter ↵.
- Use the arrows ↑↓ to choose **Y** (Yes - the battery is connected) or **N** (No - the battery is not connected), then press Enter ↵.

Setup System Info Menu

```
  SETUP SYSTEM INFO
  CHANGE PASSWORD
  CHANGE DATE & TIME
  ↑↓=NEXT  ↵=SELECT
  SETUP SITE ID
> CONNECT BATTERY
  SETUP SERV PH NUM
  FACTORY DEFAULTS
```

Connect Battery

```
  IS THE BATTERY
  CONNECTED? Y

  ↑↓=Y/N       ↵=END
```

7.9.5 Backup and Upload Configuration File *(Service Terminal Interface only)*

This operation may be performed only through the Service Terminal Interface. It permits the user to make a copy of the AC8's configuration settings and save it as a file on the computer connected through the RS232 port. Should the need arise, the user can upload the configuration file from the computer to the AC8, instead of re-entering the settings manually.

To access these options:

1. Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
2. At the Main Menu, enter **0** (zero—Setup System - Login Required).
3. At the Login Menu, enter your password, then press the Enter key.
4. At the Setup Menu, enter **7** (Setup System Information).
5. At the Setup System Information Menu, enter **5** (Backup & Upload Configuration File). The Backup & Upload Configuration File menu appears, shown below:

Backup & Upload Configuration File - Backup ***(Service Terminal Interface only)***

```
BACKUP AND UPLOAD CONFIGURATION FILE

Backup from panel saves panel configurations
Upload to panel restores panel configurations


 Select to backup or upload file


1=BACKUP CONFIGURATION FILE
2=UPLOAD CONFIGURATION FILE
3=RETURN TO SETUP SYSTEM INFO MENU
4=RETURN TO SETUP MENU
5=RETURN TO MAIN MENU

SELECT A NUMBER:1
```

6. Enter **1** to back up the configuration file from the AC8 to the computer and proceed to **Step 8**,
   OR
7. Enter **2** to upload the configuration file from the computer to the AC8 and proceed to **Step 13**.
   NOTE: This will replace the current configuration settings in the AC8 with the most recent backup.

Back Up the Configuration File

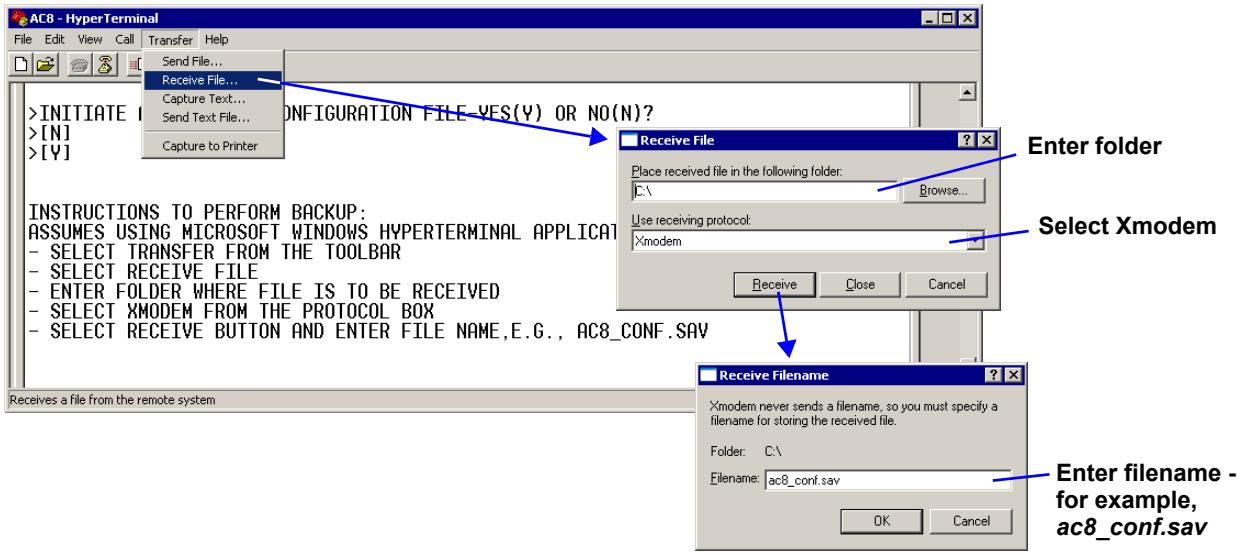
8. At the prompt to Initiate a Backup of Configuration File, enter **Y** (Yes - begin) or **N** (No - cancel). The current setting appears in brackets—[N] in the following example.

```
>INITIATE A BACKUP OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[
```

NOTE

The following instructions refer to the Microsoft Windows HyperTerminal program. These steps may vary for other communications programs.

9. At the top of the HyperTerminal window, shown below, click on **Transfer**, then on **Receive File**.



10. In the Receive File window, as shown above:
    - In the Place Received File in the Following Folder box, enter the name and location of the folder where the configuration file should be placed—for example, **C:**—or click on the **Browse** button to locate the folder.
    - In the Use Receiving Protocol box, select **Xmodem** from the drop-down list.
    - Click on the **Receive** button. (To close the window without backing up the file, click on **Close** or **Cancel**.)
11. In the Receive Filename window, enter a name for the file—for example, **ac8_conf.sav**—and click **OK**.
12. When the transfer is complete, a confirmation message appears in the Service Terminal Interface window: "Backup Successful."

Upload the Configuration File

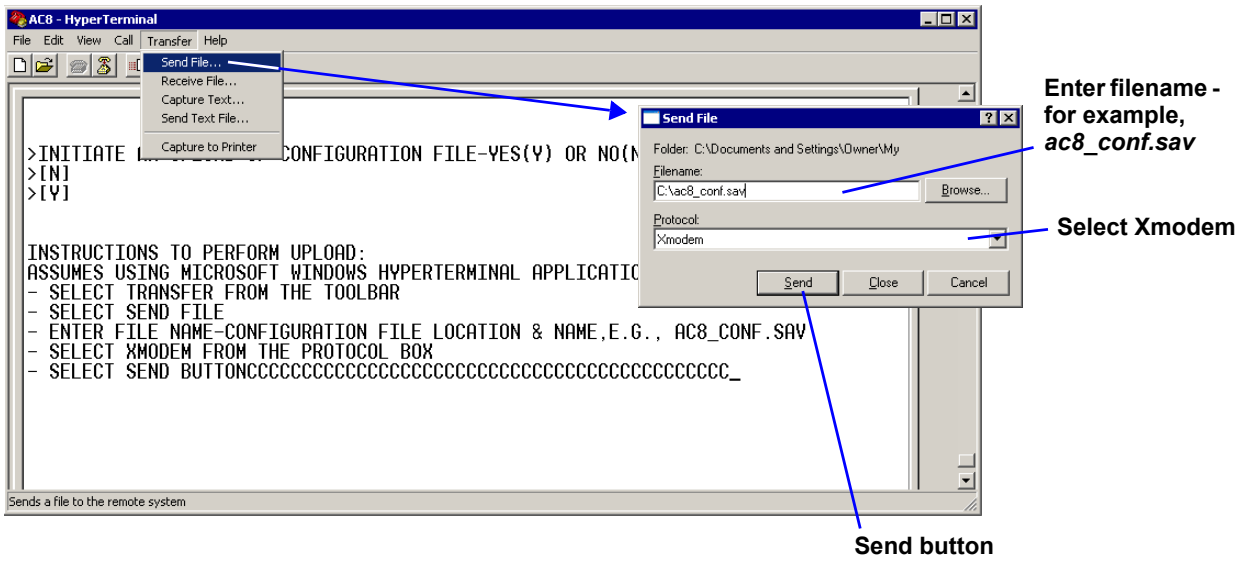
13. At the prompt to Initiate an Upload of Configuration File, enter **Y** (Yes - begin) or **N** (No - cancel). The current setting appears in brackets—[N] in the following example.

```
>INITIATE AN UPLOAD OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[
```

NOTE

The following instructions refer to the Microsoft Windows HyperTerminal program. These steps may vary for other communications programs.

14. At the top of the HyperTerminal window, shown below, click on **Transfer**, then on **Send File**.



15. In the Send File window, as shown above:
    - In the Filename box, enter the full path of the file to be uploaded—for example, **C:\ac8_conf.sav**—or click on the **Browse** button to locate the file.
    - In the Protocol box, select **Xmodem** from the drop-down list.
    - Click on the **Send** button. (To close the window without sending the file, click on **Close** or **Cancel**.)
16. When the transfer is complete, a confirmation message—"Upload Successful"—appears in the Service Terminal Interface window and the AC8 reboots with the new configuration.

7.9.6 Setup Serv Ph Num - Enter Phone Number

The Service Phone Number (Serv Ph Num) is used for remote monitoring by Liebert Global Services. The number is designed to allow remote monitoring services to connect to the AC8. All alarms will be sent to this number. When an alarm occurs, this number is dialed before any of the four pager numbers.

To use the service phone number features, be sure to connect the phone line connector to a telephone wall jack using an RJ11 cord, as described in **3.6.2 - Phone Line Connector**.

Table 26 Service phone number dialing results

Result of Dialing	Action	Message Generated
Successful	—	—
Unsuccessful due to:		
Busy signal / no answer / no dial tone	AC8 generates message after all three redial attempts have failed, dials next configured pager.	*Unsuccessful Page* (Event Log)
General modem communication problem	AC8 resets modem, generates message, redials up to three more times.	*Modem Reset* (Event Log)
No communication with modem (internal hardware problem)	AC8 generates messages, makes no further dialing attempts.	*Modem Internal Fault* (Active Alarm Report, Alarm History Log)

To set up the service phone number:

- From the Setup System Info Menu, use the arrows ↑↓ to choose **Setup Serv Ph Num**, then press Enter ↵.
- See **Table 27** for guidelines on entering the phone number, which may consist of up to 40 characters. To enter the phone number:
  - Use the arrows ↑↓ to choose a character.
  - Press Enter ↵ to advance to the next character position.
  - When finished, press Enter ↵ again.

Setup System Info Menu

```
   SETUP SYSTEM INFO
  CHANGE PASSWORD
  CHANGE DATE & TIME
  ↑↓=NEXT  ↵=SELECT
  SETUP SITE ID
  CONNECT BATTERY
> SETUP SERV PH NUM
  FACTORY DEFAULTS
```

↵

Setup Serv Ph Num

```
 ENTER PHONE NUMBER
M18005551212

↑↓=SELECT ↵=NEXT/END
```

Table 27 Guidelines for dialing service phone number

Device type	Required entries	Example
Remote modem	The first character must be "**M**".	**M**18005551212
Device type	**Optional entries**	**Example**
All types of devices	Use "**9**" if needed to access an outside line—place after first character (M).	M**9**18005551212
	Use "**W**" to wait for a second dial tone before dialing if the phone system has two dial tones (initial tone and a second tone for outside line)—place after "9" (before the number to be dialed).	M9**W**18005551212
	Use "," (comma) to pause two seconds.	M1,8005551212

7.9.7 Setup Serv Ph Num - Communications Check (Service Terminal Interface only)

The Service Terminal Interface offers two additional options for setting up the Service Phone Number (Serv Ph Num) that are not available through the LCD interface:

- Enable communications check
- Enter time to perform communications check

To access these options:

- Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **0** (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter **7** (Setup System Information).
- At the Setup System Information Menu, enter **6** (Setup Service Phone Number).
- At the Setup Service Phone Number menu, shown below, enter **1** to begin the setup.

Setup Service Phone Number ***(Service Terminal Interface only)***

```
    SETUP SERVICE PHONE NUMBER

 This number receives all alarms
 in addition to the 4 pagers
                                        CURRENT NUMBER

  1=SETUP SERVICE PHONE NUMBER
  2=RETURN TO SETUP SYSTEM INFO MENU                  ******************
  3=RETURN TO SETUP MENU                              An "M" is required
  4=RETURN TO MAIN MENU                               as 1st character.
                                                      ******************

SELECT A NUMBER:1
```

- At the Enter Service Phone Number prompt, you may press Enter to bypass this option (or see **7.9.6 - Setup Serv Ph Num - Enter Phone Number** for instructions on entering the number).

```
>ENTER SERVICE PHONE NUMBER(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL
```

Enable Communications Check

Enabling this function permits a daily communications test between the AC8 and the selected service phone number. Once each day the AC8 dials the service phone number at a specified time and sends this message: "AC8 COMM CHECK." (The time of the test is specified at the next prompt, **Enter Time To Perform Communications Check**.)

- At the Enable Communications Check prompt, enter **Y** (Yes - enable) or **N** (No - disable). The current setting appears in brackets—[N] in the following example.

```
>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)?
>[N]
>
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: "Command Successful."

Enter Time To Perform Communications Check

This function schedules the daily communications test between the AC8 and the selected service phone number, as described in the previous section.

- At the Enter Time To Perform Communications Check prompt, enter the time to initiate the communications check, using the format HH:MM (hours and minutes in military time), ranging from 00:00 for midnight to 23:59 for 11:59 p.m. The current setting appears in brackets—[00:00] in the following example.

```
>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM).
>[00:00]
>[
>COMMAND SUCCESSFUL
```

- Press Enter to proceed, or Escape to cancel the entry. If you make a change, a confirmation message appears: "Command Successful."

7.9.8 Factory Defaults

At any time, you may restore all default values for settings in the AC8 as it was shipped.

Setup System Info Menu

```
  SETUP SYSTEM INFO
 CHANGE PASSWORD
 CHANGE DATE & TIME
 ↑↓=NEXT  ↵=SELECT
 SETUP SITE ID
 CONNECT BATTERY
 SETUP SERV PH NUM
> FACTORY DEFAULTS
```

Factory Defaults

```
RESTORE ALL DEFAULTS
ARE YOU SURE? N

↑↓=Y/N        ↵=END
```

NOTE
This action will overwrite any configuration settings. You may want to back up your settings before restoring the factory defaults. See ***Backup and Upload Configuration File (Service Terminal Interface only)*** *in* ***A.6.7 - Setup System Info*** *for details on backing up settings using the Service Terminal Interface.*

The password is the sole exception when reverting to the factory default settings. The password can be reset to the factory default of AAAA only through the DIP switches. For details, see **Change Password on page 58**.

7.9.9 Perform Firmware Update *(Service Terminal Interface only)*

This function, which may be performed only through the Service Terminal Interface, upgrades the AC8's firmware to the newest version.

NOTE
This action will overwrite any configuration settings. You may want to back up your settings before restoring the factory defaults. See ***Backup and Upload Configuration File (Service Terminal Interface only)*** *in* ***A.6.7 - Setup System Info*** *for details on backing up settings using the Service Terminal Interface.*

- Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **0** (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter **7** (Setup System Information).
- At the Setup System Info menu, enter **8** (Perform Firmware Update).
- At the Perform Firmware Update menu, shown below, enter **1** to proceed with an update.

Firmware Update ***(Service Terminal Interface only)***

```
   PERFORM FIRMWARE UPDATE

 This command will update
 the existing firmware


  1=PERFORM FIRMWARE UPDATE
  2=RETURN TO SETUP SYSTEM INFO MENU
  3=RETURN TO SETUP MENU
  4=RETURN TO MAIN MENU

SELECT A NUMBER:1
```

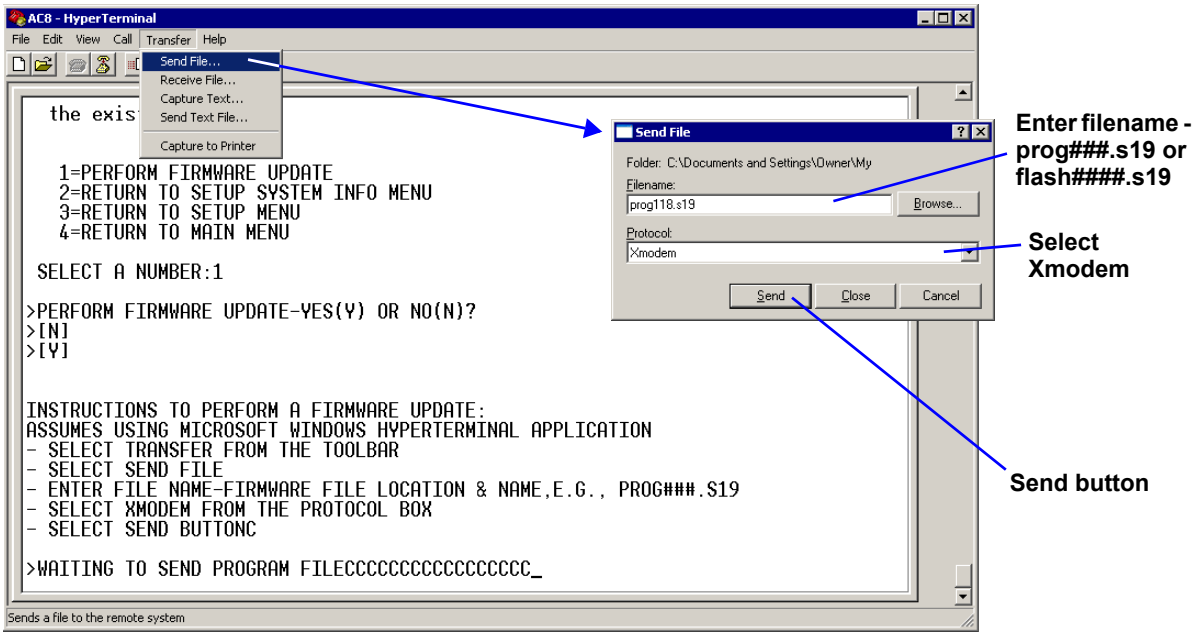
To perform the update:

1. At the Perform Firmware Update prompt, enter **Y** (Yes - begin) or **N** (No - cancel). The current setting appears in brackets—[N] in the following example.

```
>PERFORM FIRMWARE UPDATE-YES(Y) OR NO(N)?
>[N]
>[
```

NOTE
The following instructions refer to the Microsoft Windows HyperTerminal program. These steps may vary for other communications programs.

2. The firmware update is a two-step process—this step describes how to upload the file **prog###.s19** (where **###** is a number—for example, prog118.s19) to the AC8:
   a. At the top of the HyperTerminal window, shown below, click on **Transfer**, then on **Send File**.



   b. In the Send File window, as shown above:
      - In the Filename box, enter the full path of the file to be uploaded—**prog###.s19**—or click on the **Browse** button to locate the file.
      - In the Protocol box, select **Xmodem** from the drop-down list.
      - Click on the **Send** button. (To close the window without sending the file, click on **Close** or **Cancel**.)
      - When the transfer is complete, a confirmation message appears in the Service Terminal Interface window.
3. Next, follow these steps to upload the file **flash####.s19** (where **####** is a number—for example, flash1000.s19) to the AC8:
   a. At the top of the HyperTerminal window, shown above, click on **Transfer**, then on **Send File**.
   b. In the Send File window, shown above:
      - In the Filename box, enter the full path of the file to be uploaded—**flash####.s19**—or click on the **Browse** button to locate the file.
      - In the Protocol box, select **Xmodem** from the drop-down list.
      - Click on the **Send** button. (To close the window without sending the file, click on **Close** or **Cancel**.)
      - When the transfer is complete, a confirmation message—"Firmware Update Successful"—appears in the Service Terminal Interface window and the AC8 reboots with the new firmware update.

7.9.10 Initiate Remote Alarm Test *(Service Terminal Interface only)*

The service phone number is used for remote monitoring by Liebert Global Services. The Service Terminal Interface may be used to test communications between the AC8 and the service modem. This test will send a "DIAL OUT TEST PASSED" message to the service phone number.

The test is used to simulate an alarm to verify the proper configuration and functioning of the modem and other communications required for receiving alarms. This simulated alarm bypasses the normal alarm sequence—the LCD will not flash, the horn will not sound and there will be no record in the Alarm Log. A message is sent to the service phone number only if the alarm system is set up correctly.

To initiate the remote alarm test:

- Connect to the AC8 either from a remote computer or through the RS232 port (see **A.2 - Connecting to the Service Terminal Interface**).
- At the Main Menu, enter **0** (zero—Setup System - Login Required).
- At the Login Menu, enter your password, then press the Enter key.
- At the Setup Menu, enter **7** (Setup System Information).
- At the Setup System Info menu, enter **9** (Initiate Remote Alarm Test).
- At the Initiate Remote Alarm Test menu, shown below, enter **1** to initiate the remote alarm.

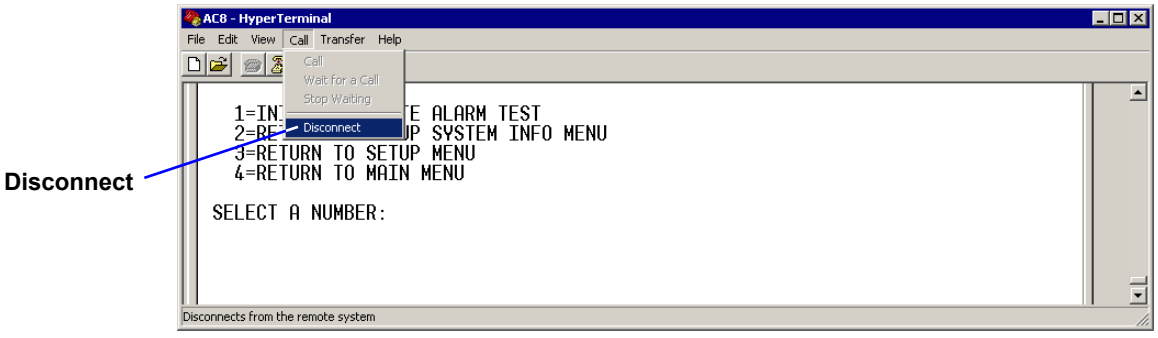
Initiate Remote Alarm Test ***(Service Terminal Interface only)***

```
    INITIATE REMOTE ALARM TEST

  This command simulates an alarm
  to test alarm notification setup
  for the service phone number


   1=INITIATE REMOTE ALARM TEST
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

- At the Simulate An Alarm Condition prompt, enter **Y** if you wish to proceed or **N** if you want to cancel the alarm simulation.

```
>SIMULATE AN ALARM CONDITION-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

- After the "Command Successful" message appears, disconnect from the modem—at the top of the HyperTerminal window, click on **Call**, then on **Disconnect**, as shown below.



- Wait for the AC8 to dial out to send a test message.
- To verify whether the test was successful, check the Event Log (see **5.3 - View Event Log**) for one of these two messages: *Dial out test passed* or *Dial out test failed*.

NOTE

Also verify that a message was received at the Service Phone Number.

If the test is NOT successful, check the following:

- Modem configuration (see **7.8.1 - Modem Setup - Initialization String**)
- Pager configuration (see **7.8.3 - Pager Setup - Pager Number and PIN**)

7.10 Setup Operation

The AC8's operation features allow you to set up a rotation sequence to alternate which devices are operating and which are placed on Standby, as well as test devices while in Standby mode and specify what to do when a Standby device goes into alarm as it is powered up. You may specify delay times after an output changes state, directing the AC8 to wait before acknowledging inputs (hold delay time) or turning an output on or off (restart delay time). With staging, you may configure the AC8 to turn a standby device on or off when an analog sensor detects a condition above or below specified levels.

To change any operation feature:

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
> SETUP OPERATION
  SETUP I/O MATRIX
```

Select Zone Menu

```
  SELECT ZONE FOR
  THE OPERATION
>     ZONE 1
  ↑↓=NEXT  ↵=EDIT
```

Setup Operation Menu

```
> AUTO SEQUENCING OFF
  STANDBY TESTING OFF
  FAILED STANDBY   N
  ↑↓=NEXT  ↵=SELECT
  HOLD DELAY : 10:00
  RESTART    : 00:06
  STAGING    : OFF
```

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select Setup Operation

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup Operation** and press Enter ↵.

Select a Zone to Configure

- From the Select Zone Menu, use the arrows ↑↓ to choose the zone you want—for example, **Zone_1**—and press Enter ↵.
- Use the steps following **Table 28** to access any of the Setup Operation options.

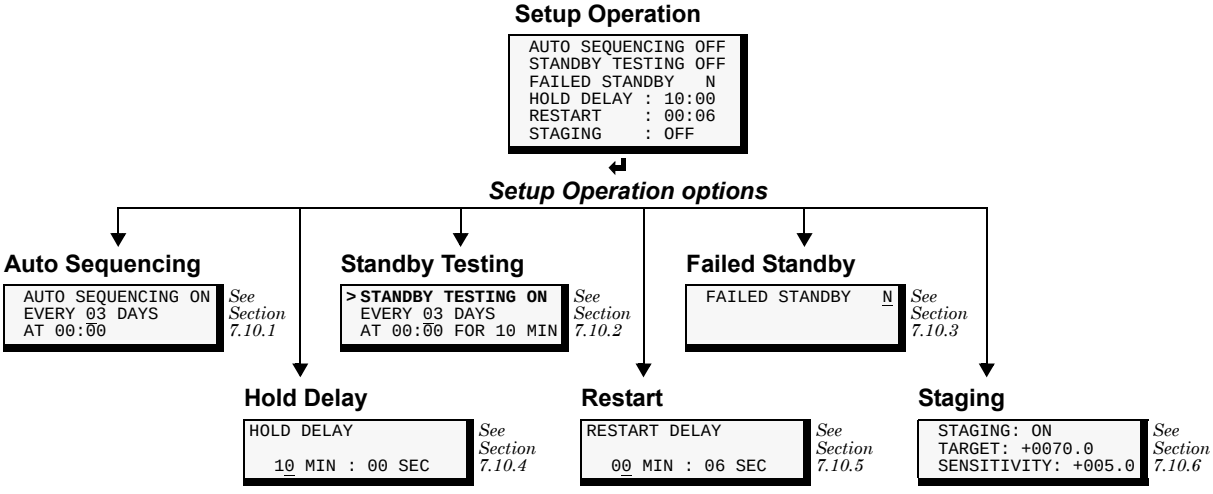
Table 28 shows the default settings for operation options: automatic sequencing, standby testing, failed standby, hold delay, restart and staging.

Table 28 Default settings - operation features

Feature	Default	Other Options
AUTO SEQUENCING	**OFF** (Deactivated)	ON (Activated), 12h (Activated for 12-hour intervals)
STANDBY TESTING	**OFF** (Deactivated)	ON (Activated)
FAILED STANDBY	**N** (Deactivated)	Y (Activated)
HOLD DELAY	**10:00** (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
RESTART	**00:06** (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
STAGING	**OFF** (Deactivated)	ON (Activated)

Figure 12 provides an overview of the Setup Operation screens available via the LCD interface.

Figure 12 Menu overview - Setup Operation menu



7.10.1 Turn Automatic Sequencing On or Off

Use automatic sequencing to set up a schedule for rotation of redundant devices. For example, three devices might be in operating mode while a fourth device is in standby mode. Every two days, the AC8 returns the standby device to operating mode and places one of the operating devices on standby.

When zones are used, the AC8 manages the rotation sequence for each zone separately, so each zone might have one device in operating mode and one in standby mode.

NOTE

*Auto sequencing will not function in a zone with any devices defined as Not Used. All outputs in the zone must be defined as Operating or Standby (see **7.7 - Setup System - Setup Outputs**).*

Auto sequencing is OFF (deactivated) by default. When auto sequencing is activated (ON or 12h, for a 12-hour interval), the AC8 cycles devices at the specified interval and time of day as follows:

- An output device in Standby mode is returned to Operating mode.
- An output device that is Operating is put in Standby mode.

When more than one device is in Standby mode or turned On, the AC8 performs the operations in a sequence that rotates the order. For example, in a sequence set up to occur every two days:

- Monday: Device 1 is placed on Standby, and Devices 2, 3 and 4 operate.
- Wednesday: Device 2 is placed on Standby, and Devices 1, 3 and 4 operate.
- Friday: Device 3 is placed on Standby, and Devices 1, 2 and 4 operate.
- Sunday: Device 4 is placed on Standby, and Devices 1, 2 and 3 operate.

NOTE

*The AC8 will not cycle outputs that have been manually forced On or Off through the Override Output Menu or the hardware switch (see **7.12 - Override Output**).*

To change the auto sequencing settings:

1. From the Setup System Operation Menu, use the arrows ↑↓ to choose **Auto Sequencing**, then press Enter ↵.

Activate or Deactivate

2. In the Activate / Deactivate screen, use the arrows ↑↓ to choose one of three options:
   a. **ON** for intervals of every 1 to 99 days, then press Enter ↵ and proceed to **Step 3**.
   b. **12h** for an interval of every 12 hours, then press Enter ↵ and proceed to **Step 4**.
   c. **OFF** to deactivate auto sequencing, then press Enter ↵ to return to the previous menu.

Specify Start Time and Interval: Every 1 to 99 Days

3. Select the interval for how often the sequencing should occur in the **Every 03 Days** field. The default is 3 days; valid entries range from 0 to 99 days.
   - For each digit, use the arrows ↑↓ to choose a number from 0 to 9, then press Enter ↵ to advance to the next digit.
   - When finished, press Enter ↵ to set the time of day.

Specify Start Time: Every 12 Hours

4. Specify the time of day the sequencing should begin in the **At 00:00** field. The format is HH:MM for hours and minutes.
   - Use the arrows ↑↓ to choose from available entries for hours (00-23), then press Enter ↵ to advance to minutes.
   - Use the arrows ↑↓ to select minutes (00-59).
   - When finished, press Enter ↵ again.

Setup Operation Menu

```
> AUTO SEQUENCING OFF
  STANDBY TESTING OFF
  FAILED STANDBY   N
  ↑↓=NEXT  ↵=SELECT
  HOLD DELAY : 10:00
  RESTART    : 00:06
  STAGING    : OFF
```

↵

Activate / Deactivate

```
  AUTO SEQUENCING OFF


  ↑↓=NEXT   ↵=EDIT
```

↵

Set Interval & Start Time (1- to 99-Day Interval)

```
  AUTO SEQUENCING ON
  EVERY 03 DAYS
  AT 00:00
  ↑↓=NEXT   ↵=EDIT
```

Set Start Time (12-Hour Interval)

```
  AUTO SEQUENCING 12h

  AT 00:00
  ↑↓=NEXT   ↵=EDIT
```

7.10.2 Turn Standby Testing On or Off

Standby testing permits scheduling an automatic operational check of devices in Standby mode.

When this feature is activated (ON), the AC8 tests all devices in Standby mode by putting each device in operating mode for a designated time. If an operating unit is designated as disabled on alarm, the unit is turned off during standby testing, then turned on when the test ends.

You may specify the time of day the testing begins, the duration of the test and the interval between tests. Standby testing is OFF (deactivated) by default.

To change the standby testing settings:

1. From the Setup System Operation Menu, use the arrows ↑↓ to choose **Standby Testing**, then press Enter ↵.
2. In the Activate / Deactivate screen, use the arrows ↑↓ to choose:
   a. Choose **ON** to activate standby testing, then press Enter ↵ and proceed to **Step 3**.
   a. Choose **OFF** to deactivate the feature, then press Enter ↵ and return to the previous screen.
3. Select the desired interval for how frequently testing should occur in the **Every 03 Days** field. The default is 3 days; valid entries range from 0 to 99 days.
   - For each digit, use the arrows ↑↓ to choose a number from 0 to 9, then press Enter ↵ to advance to the next digit.
   - When finished, press Enter ↵ to configure the time of day.
4. Specify the time of day the test should begin in the **At 00:00** field. The format is HH:MM for hours and minutes.
   - Use the arrows ↑↓ to choose from available entries for hours (00-23), then press Enter ↵ to advance to minutes.
   - Use the arrows ↑↓ to select minutes (00-59).
   - When finished, press Enter ↵ again.
5. Specify the duration of the test in minutes—the length of time the standby units will be turned On—in the **For 10 Min** field. Use the arrows ↑↓ to choose a number from 0 to 59 minutes. The default is 10 minutes.
6. When finished, press Enter ↵.

Setup Operation Menu

```
  AUTO SEQUENCING OFF
> STANDBY TESTING OFF
  FAILED STANDBY   N
  ↑↓=NEXT  ↵=SELECT
  HOLD DELAY : 10:00
  RESTART    : 00:06
  STAGING    : OFF
```

↵

Activate / Deactivate

```
  STANDBY TESTING OFF


  ↑↓=NEXT   ↵=EDIT
```

↵

Change Standby Testing

```
> STANDBY TESTING ON
  EVERY 03 DAYS
  AT 00:00 FOR 10 MIN
  ↑↓=NEXT   ↵=EDIT
```

7.10.3 Specify Failed Standby Response

The AC8's Failed Standby feature determines what happens when an operating device fails and a standby device then becomes an operating unit. A subsequent alarm in the newly operating unit (previously the standby device) results in either restarting the previously operating device that was alarmed or not. This feature specifies whether each device remains in its current state or returns to its previous state of operation.

When this feature is activated (Y), each device returns to its previous state, as **Table 29** shows. The newly enabled Standby device is disabled; the previously operating device returns to Operating mode.

The default setting is N (deactivated), meaning that each device remains in its current state: the Standby device remains enabled and the previously operating unit remains disabled.

Table 29 Failed Standby response

Failed Standby Setting	Previous Standby Device (alarm after being enabled)	Previously Operating Device
Activated (Y)	Disabled	Returns to Operating mode
Deactivated (N)	Remains enabled	Remains disabled

To change the Failed Standby settings:

- From the Setup System Operation Menu, use the arrows ↑↓ to choose **Failed Standby**, then press Enter ↵.
- In the Change Failed Standby screen, press use the arrows ↑↓ to choose **Y** to activate or **N** to deactivate the feature.
- Press Enter ↵.

Setup Operation Menu

```
  AUTO SEQUENCING OFF
  STANDBY TESTING OFF
> FAILED STANDBY   N
  ↑↓=NEXT  ↵=SELECT
  HOLD DELAY : 10:00
  RESTART    : 00:06
  STAGING    : OFF
```

↵

Change Failed Standby

```
  FAILED STANDBY   N


  ↑↓=NEXT   ↵=END
```

7.10.4 Specify Hold Delay Time

After an output changes state, the hold delay timer directs the AC8 to ignore all inputs in the same zone for the specified time.

This delay is the amount of time that must elapse before the AC8 acknowledges a change of state in any input. The default is 10 minutes (displayed as 10 MIN : 00 SEC).

The time delay applies only when a monitored output device changes *from* its normal state—for example, the AC8 detects a closed contact that is defined as Normally Open.

When the output device *returns* to its normal state, the AC8 acknowledges any input change of state immediately.

The hold delay timer also takes effect when the AC8 is powered up. All alarms are ignored until the hold delay time expires.

To change the Hold Delay Time settings:

- From the Setup Operation Menu, choose **Hold Delay**, as shown at right, and press Enter ↵.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
  - For minutes (MIN), press and hold one of the arrow keys ↑↓ to scroll through the numbers 00-99.
  - Press Enter ↵ to advance to seconds (SEC).
  - For seconds (SEC), press and hold one of the arrow keys ↑↓ to scroll through the numbers 00-59.
  - When finished, press Enter ↵ again.

Setup Operation Menu

```
  AUTO SEQUENCING OFF
  STANDBY TESTING OFF
  FAILED STANDBY   N
  ↑↓=NEXT  ↵=SELECT
> HOLD DELAY : 10:00
  RESTART    : 00:06
  STAGING    : OFF
```

↵

Hold Delay Time

```
HOLD DELAY

   10 MIN : 00 SEC
↑↓=SELECT ↵=NEXT/END
```

7.10.5 Specify Restart Time

The restart delay timer directs the AC8 to wait a specified time before changing the state of an output. This feature can prevent needless responses to transient conditions.

If two or more outputs change state simultaneously, the AC8 begins a new countdown between each output change of state.

The default is 6 seconds (displayed as 00 MIN : 06 SEC).

To change the Restart Time settings:

- From the Setup Operation Menu, choose **Restart**, as shown at right, and press Enter ↵.
- To change the time delay in minutes and seconds (in the range of 00:00 to 99:59):
  - For minutes (MIN), press and hold one of the arrow keys ↑↓ to scroll through the numbers 00-99.
  - Press Enter ↵ to advance to seconds (SEC).
  - For seconds (SEC), press and hold one of the arrow keys ↑↓ to scroll through the numbers 00-59.
  - When finished, press Enter ↵ again.

Setup Operation Menu

```
  AUTO SEQUENCING OFF
  STANDBY TESTING OFF
  FAILED STANDBY   N
  ↑↓=NEXT  ↵=SELECT
  HOLD DELAY : 10:00
> RESTART    : 00:06
  STAGING    : OFF
```

↵

Restart Delay Time

```
RESTART DELAY

   00 MIN : 06 SEC
↑↓=SELECT ↵=NEXT/END
```

7.10.6 Specify Staging

Staging allows a standby device to be turned On when a sensor detects a monitored point reaching a specified setpoint. The AC8 continues to turn On additional standby units, if available, at specified intervals.

Staging also turns Off devices as the condition returns to normal. Devices are turned off in a last-on / first-off order, triggered by decreases of half the specified sensitivity increment.

The following example illustrates the staging process for a temperature sensor with a Target setpoint of 70°F and a Sensitivity increment of 5°F.

Temperature Reaches Target Level: First Device Turned On

- When the temperature in Zone 1 reaches 75°F (target plus sensitivity), the AC8 turns On a cooling unit that has been on standby.

Temperature Rises by Sensitivity Increments: Second & Third Devices Turned On

- When the temperature reaches 80°F—an additional 5°F—the AC8 turns On a second standby cooling unit.
- If the zone has a third standby unit and the temperature rises another 5°F to 85°F, a third standby unit is turned On.

Temperature Returns to Normal: Devices Turned Off

- When the temperature drops from 85°F to 82.5°F (a decrease of 2.5°F, half the sensitivity increment of 5°F), the third unit is turned Off.
- When the temperature falls to 77.5°F, the second device is turned Off.
- When the temperature falls below 75°F, the first device is turned Off.

Staging is OFF by default.

To change the Staging settings:

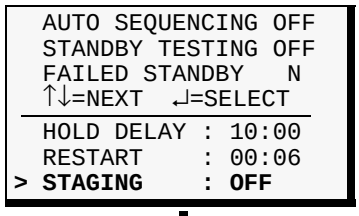
- From the Setup Operation Menu, choose **Staging**, as shown at right, and press Enter ↵.
- In the Activate/Deactivate screen, use the arrows ↑↓ to choose **ON** to activate or **OFF** to deactivate the feature, then press Enter ↵.

  NOTE: If the sensor for the zone is not connected, a SENSOR NOT CONNECTED message is displayed, shown below right. Press Escape to return to the previous screen.

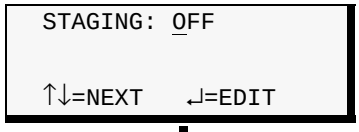
  The sensor in the zone must be set to CONNECTED to turn staging on.
- Once the feature is activated (ON), set the following features in the Staging screen:
  - Use the arrow keys ↑↓ to set the Target sensor reading value that will initiate the staging process.
  - Press Enter ↵ to advance to Sensitivity.
  - Use the arrow keys ↑↓ to set the Sensitivity that defines the increment for the next change in the staging process.

    The default value is 2.
- When finished, press Enter ↵ again.

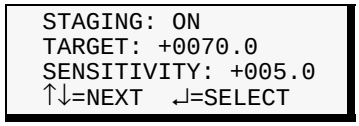
Setup Operation Menu



Activate / Deactivate



Staging



Message
(if sensor for zone is not connected to AC8)

7.11 Setup System - Setup I/O Matrix

The Setup I/O Matrix menu allows you to configure the AC8's digital and analog inputs to trigger various actions in either or both of the two control relays. Each relay can be set up to respond to more than one digital or analog input.

Almost any mapping combination can be used. For example, you may decide to trigger an action in Control Relay 1 when Device_1 goes into alarm, or you might want to generate an action in Control Relay 2 when Sensor_1 High Setpoint goes into alarm.

To set up the mapping of inputs to relays:

Setup System Menu

```
  SETUP INPUTS
  SETUP COMMON ALARM
  SETUP SENSOR
  ↑↓=NEXT  ↵=SELECT
  SETUP ZONES
  SETUP OUTPUTS
  SETUP MODEM&PAGERS
  SETUP SYSTEM INFO
  SETUP OPERATION
> SETUP I/O MATRIX
```

Log In and Choose Setup System

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Setup System**, then press Enter ↵.

Select Setup I/O Matrix

- From the Setup System Menu, shown at right, use the arrows ↑↓ to choose **Setup I/O Matrix** and press Enter ↵.
- Use the following instructions to set up the mapping of each digital input or analog sensor input to each relay.

7.11.1 Set Up Mapping for a Digital Input

Map Input/Sensor Menu

```
> MAP INPUT TO RELAY
  MAP SENSOR TO RELAY

  ↑↓=NEXT   ↵=SELECT
```

- Use the arrows ↑↓ to choose **Map Input To Relay** from the Map Input/Sensor Menu, and press Enter ↵.
- From the Select Input Menu, choose the input you want—for example, **Device_1**—and press Enter ↵.

Select Input

```
     SELECT INPUT
> DEVICE_1
  DEVICE_2
  ↑↓=NEXT   ↵=SELECT
  DEVICE_3
  DEVICE_4
  DEVICE_5
  DEVICE_6
  DEVICE_7
  DEVICE_8
```

- On the Input-to-Relay Map screen, you may map the selected input to either or both of the control relays (1-2). The example at right shows **Device_1** mapped to **Control Relay 1**.

  To make changes to the mapping:
  - If needed, press Enter ↵ to advance to the position directly below the relay.
  - Use the arrows ↑↓ to choose **Y** (Yes - Mapped to this relay) or **N** (No - Not mapped), then press Enter ↵.
  - Press Enter ↵ to advance to the next position where you want to make a change.
  - Use the arrows ↑↓ to choose **Y** (Yes - Mapped to this relay) or **N** (No - Not mapped), then press Enter ↵.
  - When finished, press Enter ↵ again.

Input-to-Relay Map

```
1  CONTROL RELAY
   1 2
   Y N
↑↓=Y/N   ↵=NEXT/END
```

Default Mappings - Digital Inputs to Control Relays

By default, digital inputs are not mapped to any control relay, as shown in **Table 30**.

Table 30 Default mapping of digital inputs to relays

Digital input	By default, mapped to control relay:
Device_1	(none)
Device_2	(none)
Device_3	(none)
Device_4	(none)
Device_5	(none)
Device_6	(none)
Device_7	(none)
Device_8	(none)

7.11.2 Set Up Mapping for an Analog Sensor Input

- Use the arrows ↑↓ to choose **Map Sensor To Relay** from the Map Input/Sensor Menu, and press Enter ↵.
- From the Select Sensor Menu, choose the input you want—for example, **Sensor_1 High Stpt**—and press Enter ↵.

Map Input/Sensor Menu

```
  MAP INPUT TO RELAY
> MAP SENSOR TO RELAY

  ↑↓=NEXT   ↵=SELECT
```

↵

Select Sensor

```
    SELECT SENSOR
> SENSOR_1 HIGH STPT
  SENSOR_1 LOW  STPT
  ↑↓=NEXT   ↵=SELECT
  SENSOR_2 HIGH STPT
  SENSOR_2 LOW  STPT
  SENSOR_3 HIGH STPT
  SENSOR_3 LOW  STPT
  SENSOR_4 HIGH STPT
  SENSOR_4 LOW  STPT
```

↵

Sensor-to-Relay Map

```
1H CONTROL RELAY
   1 2
   Y N
↑↓=Y/N   ↵=NEXT/END
```

Map Sensor to Control Relay

- On the Sensor-to-Relay Map screen, you may map the selected sensor to either or both of the control relays (1-2). The example at right shows **Sensor_1 High Stpt** mapped to **Control Relay 1**.

  To make changes to the mapping:
  - If needed, press Enter ↵ to advance to the position directly below the relay.
  - Use the arrows ↑↓ to choose **Y** (Yes - Mapped to this relay) or **N** (No - Not mapped), then press Enter ↵.
  - Press Enter ↵ to advance to the next position where you want to make a change.
  - Use the arrows ↑↓ to choose **Y** (Yes - Mapped to this relay) or **N** (No - Not mapped), then press Enter ↵.
  - When finished, press Enter ↵ again.

Default Mappings - Analog Inputs to Control Relays

By default, analog inputs are not mapped to any control relay, as shown in **Table 31**.

Table 31 Default mapping of analog inputs to relays

Analog input	By default, mapped to control relay:
Sensor_1	(none)
Sensor_2	(none)
Sensor_3	(none)
Sensor_4	(none)

7.12 Override Output

The Override Output feature allows you to manually change the state of any digital output to ON or OFF, overriding automatic control by the AC8 (the default setting for all outputs). This menu also allows you to release the manual override, returning any output to automatic control.

There are two ways to override automatic control of outputs:

- Use the Override Output menu, as described in this section, to turn any output ON or OFF.
- Use the hardware switch on the AC8 circuit board to force all eight outputs ON at the same time (see **Item I - Manual Override Switch (outputs)** in **1.7 - Controller Board Overview**).

After an output is forced manually ON or OFF through the Override Output menu, it remains in that state until returned to automatic control through this menu.

Table 32 summarizes the four types of control, including the abbreviated message that appears on the LCD and in log reports.

Table 32 Automatic / manual control - output points

Message	Description	
AUTO	Automatic	Controlled by AC8 (default for all outputs)
FORCE ON	Manually ON	This output has been forced ON (operating) or OFF via the Override Output menu
FORCE OFF	Manually OFF	
HW FORCE ON	Manually ON (all outputs)	All outputs have been forced ON (operating) via the hardware switch on the circuit board (see **Item I - Manual Override Switch (outputs)** in **1.7 - Controller Board Overview**)

To force an output point ON or OFF or return it to automatic control:

Log In and Choose Override Output

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Override Output**, then press Enter ↵.

Select an Output

The Select Output menu, shown at right, displays the current status of all eight outputs.

- Use the arrows ↑↓ to choose the output you want—for example, **Device_1**—and press Enter ↵.

Turn Output ON or OFF / Return to Automatic

- From the Override Output menu, use the arrows ↑↓ to choose one of these options:
  - **AUTO** - return to automatic control
  - **FORCE ON** - manually turn this output ON (operating)
  - **FORCE OFF** - manually turn this output OFF
- Press Enter ↵.

Main Menu

```
  VIEW STATUS
> SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

Login

```
        LOGIN

         AAAA
↑↓=SELECT ↵=NEXT/END
```

System & Control Menu

```
  SETUP SYSTEM
> OVERRIDE OUTPUT
  CLEAR ALARMS & LOGS
  ↑↓=NEXT   ↵=SELECT
```

Select Output

```
   OVERRIDE OUTPUT
> DEVICE_1  AUTO
  DEVICE_2  AUTO
  ↑↓=NEXT   ↵=SELECT
  DEVICE_3  AUTO
  DEVICE_4  FORCE ON
```

Override Output

```
 SELECT DEVICE_1

        FORCE ON
↑↓=SELECT ↵=END
```

7.13 Clear Alarms & Logs

The Clear Alarms & Logs menu allows you to clear active alarms or delete all records from any of the AC8's three logs: alarm, event and trend logs.

To clear alarms or logs:

Log In and Choose Clear Alarms & Logs

- From the Main Menu, use the arrows ↑↓ to choose **System and Control**, then press Enter ↵ (see **7.1 - Login** for help).
- Enter your password at the Login screen.
- From the System and Control Menu, use the arrows ↑↓ to choose **Clear Alarms & Logs**, then press Enter ↵.
- Use the following steps to clear alarms or delete log records.

Main Menu

```
  VIEW STATUS
> SYSTEM AND CONTROL

  ↑↓=NEXT      ↵=SELECT
```

Login

```
        LOGIN

          AAAA
↑↓=SELECT ↵=NEXT/END
```

System & Control Menu

```
  SETUP SYSTEM
  OVERRIDE OUTPUT
> CLEAR ALARMS & LOGS
  ↑↓=NEXT   ↵=SELECT
```

7.13.1 Clear Active Alarms

To clear all active alarms:

- From the Clear Alarms/Logs Menu, use the arrows ↑↓ to choose **Clear Active Alarms**, then press Enter ↵.
- Use the arrows ↑↓ to choose **Y** (Yes - clear all active alarms) or **N** (No - do not clear alarms), then press Enter ↵.

Clearing active alarms is the only means to reset latched alarms. This step is required to return latched points to their normal state. To set up a digital input or an analog sensor input as latched, see:

- **7.3.4 - Set Up Alarmable Inputs in Latched or Unlatched Mode**
- **7.5.8 - Set Up Alarmable Sensors in Latched or Unlatched Mode**

Clear Alarms/Logs Menu

```
> CLEAR ACTIVE ALARMS
  CLEAR ALARM LOG
  CLEAR EVENT LOG
  ↑↓=NEXT   ↵=SELECT
  CLEAR TREND LOGS
```

Clear Active Alarms

```
CLEAR ACTIVE ALARMS
ARE YOU SURE? N

↑↓=Y/N         ↵=END
```

7.13.2 Clear the Alarm Log

The alarm log contains up to 99 records of alarms that have occurred. You may want to clear the log after backing up the file or simply to free up space.

NOTE
Before deleting the records in the alarm log, you may want to back up the file to a remote computer using the Service Terminal Interface, as described in ***6.2 - Back Up Log Files (Service Terminal Interface only)****.*

To delete all records from the alarm log:

- From the Clear Alarms/Logs Menu, use the arrows ↑↓ to choose **Clear Alarm Log**, then press Enter ↵.
- Use the arrows ↑↓ to choose **Y** (Yes - clear the alarm log) or **N** (No - do not clear the alarm log), then press Enter ↵.

NOTE
Clear active alarms is the only means to reset Latched alarms. This action must be taken to return Latched points to their normal state.

Clear Alarms/Logs Menu

```
  CLEAR ACTIVE ALARMS
> CLEAR ALARM LOG
  CLEAR EVENT LOG
  ↑↓=NEXT   ↵=SELECT
  CLEAR TREND LOG
```

Clear Alarm Log

```
CLEAR ALARM LOG
ARE YOU SURE? N

↑↓=Y/N         ↵=END
```

7.13.3 Clear the Event Log

The event log contains up to 99 records of events detected by the AC8. You may want to clear the log after backing up the file or simply to free up space.

Clear Alarms/Logs Menu

```
  CLEAR ACTIVE ALARMS
  CLEAR ALARM LOG
> CLEAR EVENT LOG
  ↑↓=NEXT  ↵=SELECT
  CLEAR TREND LOGS
```

Clear Event Log

```
CLEAR EVENT LOG
ARE YOU SURE? N

↑↓=Y/N        ↵=END
```

NOTE
Before deleting the records in the event log, you may want to back up the file to a remote computer using the Service Terminal Interface, as described in ***6.2 - Back Up Log Files (Service Terminal Interface only)****.*

To delete all records from the event log:

- From the Clear Alarms/Logs Menu, use the arrows ↑↓ to choose **Clear Event Log**, then press Enter ↵.
- Use the arrows ↑↓ to choose **Y** (Yes - clear the event log) or **N** (No - do not clear the event log), then press Enter ↵.

7.13.4 Clear the Trend Logs

The AC8 maintains a separate trend log for each configured analog input sensor. Each log contains up to 100 records of data collected at regular intervals. You may want to clear the logs after backing up the files or simply to free up space.

Using the Clear Trend Logs command will clear all four trend logs maintained by the AC8. There is no method of clearing records from individual logs.

Clear Alarms/Logs Menu

```
  CLEAR ACTIVE ALARMS
  CLEAR ALARM LOG
  CLEAR EVENT LOG
  ↑↓=NEXT  ↵=SELECT
> CLEAR TREND LOGS
```

Clear Trend Log

```
CLEAR TREND LOGS
ARE YOU SURE? N

↑↓=Y/N        ↵=END
```

NOTE
Before deleting the records in the trend logs, you may want to back up the files to a remote computer using the Service Terminal Interface, as described in ***6.2 - Back Up Log Files (Service Terminal Interface only)****.*

To delete the records from ALL four trend logs:

- From the Clear Alarms/Logs Menu, use the arrows ↑↓ to choose **Clear Trend Logs**, then press Enter ↵.
- Use the arrows ↑↓ to choose **Y** (Yes - clear all trend logs) or **N** (No - do not clear the trend logs), then press Enter ↵.

8.0 SPECIFICATIONS

8.1 AC8 Specifications

Power Requirements	**Transformer Module**	
	115VAC UML11500	**230VAC UML23000**
	115VAC ±10% of nominal; 60Hz, 4A, 460VA	230VAC ±10% of nominal; 50Hz, 0.5A, 115VA
Dimensions W x D x H, in. (mm)	18 x 2-3/4 x 18 (457.2 x 69.85 x 457.2)	
Weight (Assembled)	20.56 lb. (9.33 kg)	
Enclosure Type	NEMA 1	
Liquid Crystal Display (LCD)	Four line, 20 character, backlit	
Mounting Surface	Building Wall or Structural Member	
Ambient Operating Environment	32ºF to 104ºF (0ºC to 40ºC) 0% RH to 95% RH (non-condensing)	
Processor Specifics		
Model	Motorola XC68HC812A4	
Clock speed	16MHz	
Total RAM	256Kb	
Total FLASH	4M	
Total EEPROM	4K	
A/D Resolution (Analog IN)	12 Bit	
Modem Type Embedded	14.4K bps	
Clock Type	Real-Time Clock	
Clock battery backup type	Lithium Cell (non-replaceable)	
Clock battery life	7 years, constant, no power	
Modem battery backup type	Nickel Cadmium (replaceable)	
Modem battery life	10 minutes at full load	
Communications		
Local Communications	RS232	
Remote Communications Modem (9600-N-8-1) Supported pagers	Baud rate 9600 bps, Parity=None, Data bits=8, Stop bits=1 9600 E-7-1 supports TAPI protocol version 1.8	
SiteScan Web	IGM Protocol, EIA422	
Agency Listings	**Transformer Module**	
	115VAC (TM115)	**230VAC (TM230)**
UL	UL1012	UL1585
CSA	C22.2 No. 66 and C22.2 No. 107.1	
CE	Yes	
FCC Compliance	N/A	
Inputs & Outputs (Quantity)		
Digital Inputs (8)	Dry Contact Closure 24VDC, 10 mA	
Analog Inputs (4)	4-20 mA signal input with selectable power source of 12VDC or 24VDC	
Digital Outputs (8)	24VAC, 3A	
Common Alarm Outputs (2)	24VAC, 3A	

NOTE

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

APPENDIX A - SERVICE TERMINAL INTERFACE

The Service Terminal Interface allows access to all functions of the AC8, including some that are not possible through the LCD interface. This interface is accessible through any computer using a communications program such as Microsoft® Windows® HyperTerminal.

This appendix provides directions for connecting to the Service Terminal Interface, an overview of each type of function and sample screens for each menu available through the Service Terminal Interface. References to more detailed instructions about each function are provided.

A.1 COMPARISON OF FUNCTIONS: LCD AND SERVICE TERMINAL INTERFACE

Table 33 lists all functions for viewing and configuring the AC8 and shows whether they can be performed through the LCD interface and where to find information.

Table 33 Guide to AC8 functions

Function		Can be performed via:		Where to find:	
		LCD	Service Terminal	Instructions on using function	Service Terminal screen examples
VIEW STATUS FUNCTIONS					
View Active Alarms		✔	✔	page 22	page 85
View Alarm Log		✔	✔	page 23	page 86
View Event Log		✔	✔	page 24	page 87
View Trend Log		✔	✔	page 25	page 88
View Input Status		✔	✔	page 26	page 89
View Output Status		✔	✔	page 27	page 89
View Pager Numbers		✔	✔	page 28	page 90
View Operation		✔	✔	page 29	page 91
View Control Status		✔	✔	page 30	page 91
SILENCE ALARM & BACK UP LOGS FUNCTIONS					
Silence Alarm *(On the LCD, press any key to silence an alarm)*		✔	✔	page 31	page 92
Back Up Log Files		—	✔	page 32	page 93
SYSTEM & CONTROL FUNCTIONS					
Login		✔	✔	page 34	page 95
Setup System		✔	✔	page 36	page 96
Setup Inputs		✔	✔	page 36	page 97
Setup Common Alarm		✔	✔	page 39	page 97
Setup Sensor		✔	✔	page 40	page 98
Setup Outputs		✔	✔	page 47	page 99
Setup Modem & Pagers		✔	✔	page 49	page 100
Modem Setup	Initialization String	✔	✔	page 49	page 101
	Enter AC8 Phone Number	—	✔	page 51	page 101
	Enable Modem Diagnostic Messages	—	✔	page 51	page 101
	Change Modem Dial Prefix	—	✔	page 51	page 101
	Change Modem Hang Up Delay After a Call	—	✔	page 51	page 101
Pager Setup	Pager Number & PIN	✔	✔	page 53	page 100
	Communications Check	—	✔	page 55	page 100
Setup System Info		✔	✔	page 57	page 102
Change Password		✔	✔	page 58	page 102
Change Date & Time/Automatic Daylight Saving Time		✔	✔	page 58	page 103
Setup Site ID		✔	✔	page 59	page 103
Connect Battery		✔	✔	page 59	page 103
Backup and Upload Configuration File		—	✔	page 60	page 104
Setup Serv Ph Num - Enter Phone Number		✔	✔	page 63	page 105
Setup Serv Ph Num - Communications Check		—	✔	page 64	page 105
Factory Defaults		✔	✔	page 65	page 105
Perform Firmware Update		—	✔	page 65	page 106
Initiate Remote Alarm Test		—	✔	page 67	page 106
Setup Operation		✔	✔	page 68	page 107
Setup I/O Matrix		✔	✔	page 73	page 116
Override Output		✔	✔	page 75	page 113
Clear Alarms & Logs		✔	✔	page 76	page 114
Clear Active Alarms		✔	✔	page 76	page 114
Clear the Alarm Log		✔	✔	page 76	page 114
Clear the Event Log		✔	✔	page 77	page 115
Clear the Trend Logs		✔	✔	page 77	page 115

A.2 CONNECTING TO THE SERVICE TERMINAL INTERFACE

This section describes how to set up and connect to the Service Terminal Interface.

A.2.1 Connection Methods

There are two ways to access the Service Terminal Interface:

- **Direct**—Use a null modem cable to connect a computer's COM1 port to the AC8's RS232 port,
  OR
- **Remote**—Use a remote computer's modem to dial the telephone number of the phone line connected to the AC8.

Both methods require a communications program, such as HyperTerminal, to connect to the Service Terminal Interface.

Refer to **Table 34** for step-by-step instructions to set up each type of connection. Note that the remote connection does not require setting up the COM1 port.

Table 34 Steps to set up a direct or remote connection

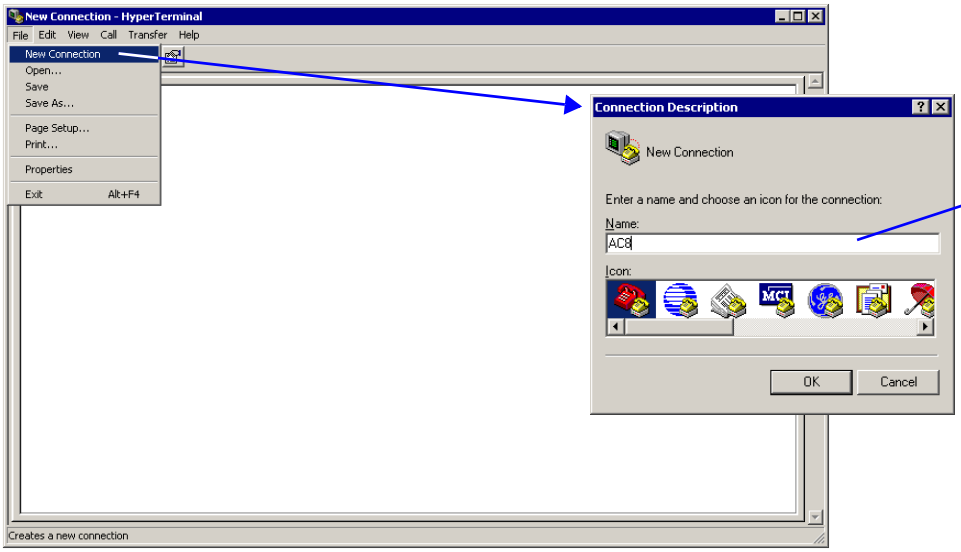
	Direct	Remote
A.2.2 - Create a Connection	✔	✔
A.2.3 - Set Up the COM1 Port - Direct Connection Only	✔	N/A
A.2.4 - Set Up the Connection's Properties	✔	✔
A.2.5 - Connect to the Service Terminal Interface	✔	✔

The instructions in this section refer to the HyperTerminal program—they may vary for other communications programs.

A.2.2 Create a Connection

Before connecting to the Service Terminal Interface, you must create a connection and specify the method to be used for connection, as described in the following steps.

1. Start the HyperTerminal program—to do this, click on the **Start** button, then on **Programs**, then **Accessories**, then **Communications**, and finally **HyperTerminal**.
2. At the top of the HyperTerminal window, click on **File**, then on **New Connection**, as shown below left.



Enter a name for the connection - for example, *AC8*

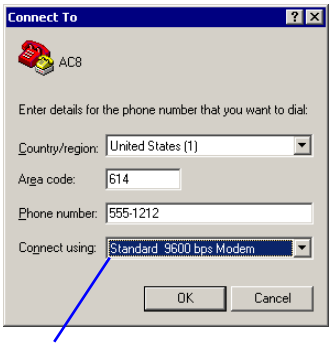
3. In the Connection Description window, shown above right, enter a name for the connection—for example, **AC8**. This becomes the file name (with the extension "**.ht**").
4. Click **OK** to close the window.

5. In the Connect To window, shown below, select the appropriate connection method from the Connect Using drop-down list:

DIRECT CONNECTION

Choose *COM1*
& proceed to Step 6

REMOTE CONNECTION



Choose the computer's modem
& proceed to Step 8

Direct Connection via RS232

- To set up a direct connection via the AC8's RS232 port, select **COM1** as shown above.

  This opens the COM1 Properties window.
- Proceed to **Step 6** (next section).

Remote Connection via Modem

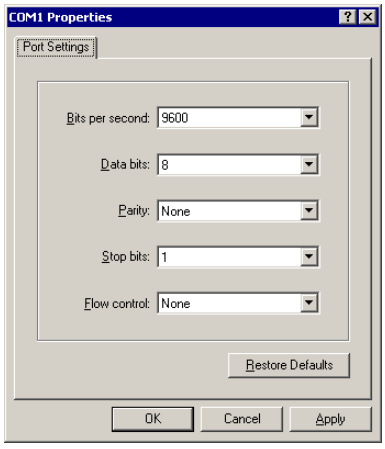
- To make a remote connection through the AC8's modem, select your computer's modem—**Standard 9600 bps Modem** in the example shown above.
- Enter the area code and phone number of the AC8's modem.
- Skip **Steps 6** and **7** and proceed to **Step 8** in **A.2.4 - Set Up the Connection's Properties**.

A.2.3 Set Up the COM1 Port - Direct Connection Only

The following steps apply only to setting up a direct connection to the Service Terminal Interface via the AC8's RS232 port. If you are setting up a remote connection via modem, skip to **Step 8** (next section).

COM1 Port Setup

6. In the COM1 Properties window, shown below, make the following selections:
   - Bits per second: **9600**
   - Data bits: **8**
   - Parity: **None**
   - Stop bits: **1**
   - Flow control: **None**



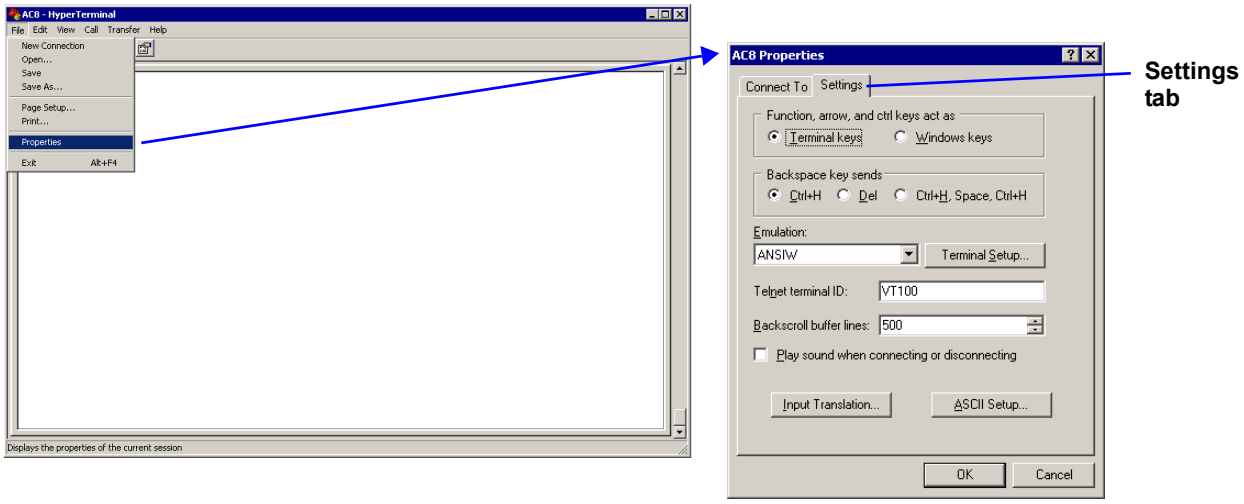
7. Click **OK**. When the connection is open, the connection name appears in the title bar of the HyperTerminal window. To complete the setup, continue with **Step 8** (next section).

A.2.4 Set Up the Connection's Properties

The following steps are needed for both direct and remote connection to the AC8.

Properties Setup

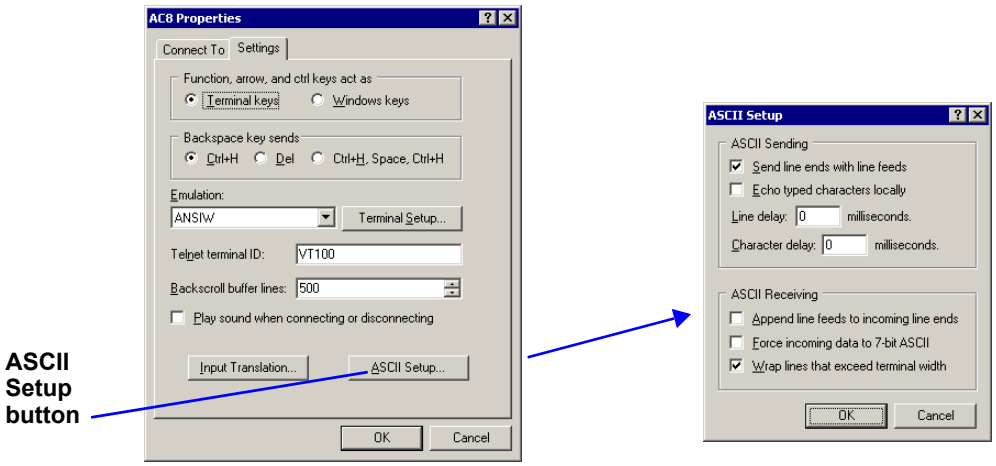
8. Open the Properties window by clicking on **File**, then on **Properties**, as shown below left.



9. In the Properties window, above right, click on the **Settings** tab and choose the following settings:
   - Function, arrow, and ctrl keys act as: **Terminal keys**
   - Backspace key sends: **Ctrl+H**
   - Emulation: **ANSIW**
   - Telnet terminal ID: **VT100**
   - Backscroll buffer lines: **500**
   - Play sound when connecting or disconnecting: **Unchecked**

ASCII Setup

10. In the Properties window, click on the **ASCII Setup** button, shown below left.



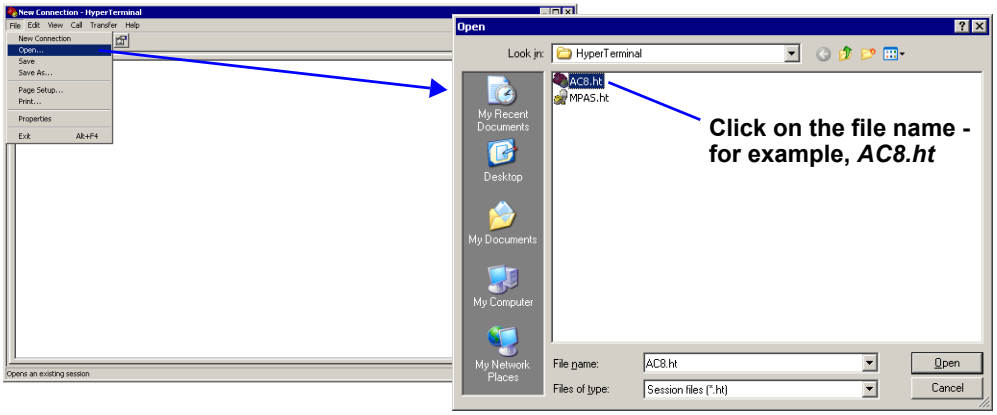
11. In the ASCII Setup window, shown above right, choose the following settings:
   - ASCII Sending: place a check mark (✔) in the **Send Line Ends With Line Feeds** box.
   - ASCII Receiving: place a check mark (✔) in the **Wrap Lines That Exceed Terminal Width** box.
   - Click **OK**.

The setup is now complete. To use the new connection, proceed to the next section, **A.2.5 - Connect to the Service Terminal Interface**.

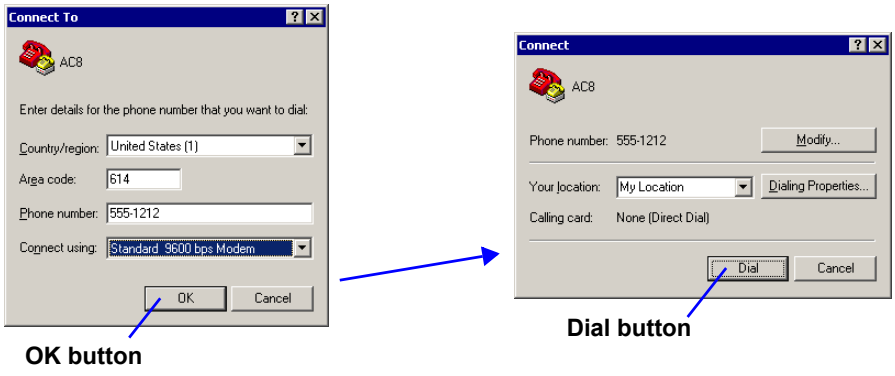
A.2.5 Connect to the Service Terminal Interface

After creating and setting up a connection, use a communications program such as HyperTerminal to access the AC8's Service Terminal Interface.

1. Verify communications connections between the remote computer and the AC8:
   a. **For direct connection (via RS232 port):**
      - Connect a null modem cable from the computer's COM1 port to the AC8's RS232 port (for location, see **3.6.1 - RS232 Connector**).
   b. **For remote connection (via modem):**
      - Verify modem connections between the remote computer and the AC8. The remote computer should have connectivity through a telephone line, high-speed cable or an Ethernet. The AC8 must have a telephone line connected to its RJ11 port (for location, see **3.6.2 - Phone Line Connector**).
2. Start the HyperTerminal program—click on the **Start** button, then on **Programs**, then **Accessories**, then **Communications**, and finally **HyperTerminal**.
3. Open the AC8 connection created in **A.2.2 - Create a Connection**. To do this, click on **File**, then on **Open**, as shown below.



4. In the Open window, shown above right, select the file name—**AC8.ht** in this example—and then click on the **Open** button.
5. Follow the steps below to display the Main Menu of the Service Terminal Interface:
   a. **For direct connection (via RS232 port):**
      - Press Enter (or Escape) to initiate communication and bring up the Main Menu.
   b. **For remote connection (via modem):**
      - The Connect window opens, as shown below left. Click the **OK** button.
      - In the Connect window, below right, click **Dial**.
      - If the dialing attempt is successful, the Main Menu appears.



For more information on the AC8's options:

- See **A.3 - Overview of Menus** for examples of the Service Terminal Interface screens.
- See **Table 33** to locate step-by-step instructions for each AC8 function.

A.3 OVERVIEW OF MENUS

The Main Menu offers choices for viewing the status of the AC8, silencing the audible alarm and backing up the unit's log files. It also allows access to the System and Control features, which require a password.

The following shows where to find examples of the Main Menu screens:

Main Menu	*For sample screens, see:*
1=VIEW ACTIVE ALARMS 2=VIEW ALARM LOG 3=VIEW EVENT LOG 4=VIEW TREND LOG 5=VIEW INPUT & SENSOR STATUS 6=VIEW OUTPUT STATUS 7=VIEW PAGER NUMBERS	**A.4 - View Status Menus**
8=SILENCE ALARM 9=BACKUP LOG FILES	**A.5 - Silence Alarm & Back Up Log Files (Service Terminal Interface only)**
0=SETUP SYSTEM-LOGIN REQUIRED	**A.6 - Setup Menu**

A.3.1 View Status Overview

The View Status features are available to all users. This permits all personnel to check on the status of any equipment or location being monitored. These options allow any user to:

- View current monitoring data—active alarms and the status of all inputs and outputs
- View data stored in alarm, event and trend logs
- View pager numbers

A.3.2 Silence Alarm and Backup Log Files

Two Main Menu options—Silence Alarm and Backup Log Files—are unique to the Service Terminal Interface. As with the View Status options, these features do not require a password:

- **Silence Alarm**—silence the AC8's audible alarm and reset the Common Alarm Relay output.
- **Backup Log Files**—make backup copies of the AC8's Alarm Log, Event Log and Trend Logs and save the copies to a computer.

A.3.3 Setup Menu Overview

The Setup Menu options require a password. Authorized users may:

- Configure the AC8—this includes setting up digital and analog inputs, digital outputs, the modem, up to four pagers, and system features such as setting the date and time

  Three system features—**Backup and Upload Configuration File**, **Firmware Update** and **Initiate Remote Alarm Test**—are unique to the Service Terminal Interface.
- Override automatic control of outputs to force an output ON or OFF
- Clear active alarms and delete all records in the alarm, event and trend logs

A.4 VIEW STATUS MENUS

The View Status menu allows any user to view currently active alarms, monitoring data stored in the alarm, event and trend logs, the status of all inputs and outputs, and the four pager numbers.

Main Menu

After connecting to the Service Terminal Interface, the Main Menu appears, as shown below. This section presents Service Terminal Interface screens for options 1 through 7:

Main Menu

```
        LIEBERT AC8

        VX.XXX.X
LIEBERT CORPORATION COPYRIGHT 2005
   ALL RIGHTS RESERVED

        MAIN MENU

   1=VIEW ACTIVE ALARMS
   2=VIEW ALARM LOG
   3=VIEW EVENT LOG
   4=VIEW TREND LOG
   5=VIEW INPUT & SENSOR STATUS
   6=VIEW OUTPUT STATUS
   7=VIEW PAGER NUMBERS
   8=SILENCE ALARM
   9=BACKUP LOG FILES
   A=VIEW OPERATION STATUS
   B=VIEW CONTROL RELAYS STATUS
   0=SETUP SYSTEM - LOGIN REQUIRED
SELECT A NUMBER:1
```

For sample screens, see:

1=VIEW ACTIVE ALARMS	**Section A.4.1**
2=VIEW ALARM LOG	**Section A.4.2**
3=VIEW EVENT LOG	**Section A.4.3**
4=VIEW TREND LOG	**Section A.4.4**
5=VIEW INPUT & SENSOR STATUS	**Section A.4.5**
6=VIEW OUTPUT STATUS	**Section A.4.6**
7=VIEW PAGER NUMBERS	**Section A.4.7**
A=VIEW OPERATION STATUS	**Section A.4.8**
B=VIEW CONTROL RELAYS STATUS	**Section A.4.9**

A.4.1 View Active Alarms

For details on this feature, see **5.1 - View Active Alarms**.

View Active Alarms

```
    ACTIVE ALARMS

 Input points/hardware
 presently in an alarm state

 SENSOR_1   101.1 DEG
 HIGH SETPOINT ALARM

 SENSOR_2  ------ DEG
 SENSOR PROBLEM

 DEVICE_7  ALARM
 CONTACT OPEN

 BATTERY
 CHECK BATTERY


 <ENTER>=MORE <ESC>=EXIT <A>=ALL
-------------------------------------

   1=REFRESH ACTIVE ALARMS
   2=RETURN TO MAIN MENU

 SELECT A NUMBER:_
```

A.4.2 View Alarm Log

For details on this feature, see **5.2 - View Alarm Log**.

View Alarm Log

```
     ALARM LOG

   Alarm history

SENSOR_2    80.0 DEG
HIGH SETPOINT ALARM
29-AUG-05   09:29:10

MODEM
INTERNAL FAULT
29-AUG-05   09:20:10

DEVICE_8  ALARM
CONTACT CLOSED
29-AUG-05   09:19:10

SENSOR_2    79.0 DEG
RETURN TO NORMAL
28-AUG-05   19:29:10


<ENTER>=MORE <ESC>=EXIT <A>=ALL
```

```
SENSOR_2  ------ DEG
SENSOR PROBLEM
28-AUG-05   15:08:10

SYSTEM
LOSS OF POWER
19-AUG-05   02:50:10

BATTERY
LOW BATTERY
18-AUG-05   05:23:10

BATTERY
BATTERY UNPLUGGED
12-AUG-05   22:47:10

  1=REFRESH ALARM LOG
  2=RETURN TO MAIN MENU

SELECT A NUMBER:_
```

A.4.3 View Event Log

For details on this feature, see **5.3 - View Event Log**.

View Event Log

```
      EVENT LOG

    Event history

PAGER
UNSUCCESSFUL PAGE
23-OCT-05 18:05:26

DEVICE_3 STARTED
23-OCT-05   18:03:17

DEVICE_3  ON
CONTACT CLOSED
23-OCT-05   18:03:17

DEVICE_2 STARTED
23-OCT-05   18:03:11


<ENTER>=MORE <ESC>=EXIT <A>=ALL
```

```
SENSOR_2  ------ DEG
SENSOR PROBLEM
22-OCT-05 07:10:10

SYSTEM
USER LOGIN
22-OCT-05 02:50:10

LIEBERT GLOBAL SERV
DIAL OUT TEST FAILED
20-OCT-05 05:23:10

MODEM
MODEM RESET
18-OCT-05 22:47:10

LIEBERT GLOBAL SERV
DIAL OUT TEST PASSED
18-OCT-05 05:23:10


<ENTER>=MORE <ESC>=EXIT <A>=ALL
```

```
  1=REFRESH EVENT LOG
  2=RETURN TO MAIN MENU

SELECT A NUMBER:_
```

A.4.4 View Trend Log

For details on this feature, see **5.4 - View Trend Log**.

View Trend Log

```
     TREND LOG

   Trend history
   for each sensor

Select sensor for trend
you want to view.

  1=SENSOR_1
  2=SENSOR_2
  3=SENSOR_3
  4=SENSOR_4
  5=RETURN TO MAIN MENU

SELECT A NUMBER:1
```

```
     TREND LOG
   Trend history

SENSOR_1    75.4 DEG
NORMAL
28-AUG-05   15:45:10

SENSOR_1    70.5 DEG
LOW SETPOINT EVENT
28-AUG-05   15:15:10

SENSOR_1    79.9 DEG
RETURN TO NORMAL
28-AUG-05   14:45:10

SENSOR_1  ------ DEG
SENSOR PROBLEM
28-AUG-05   14:15:10


<ENTER>=MORE <ESC>=EXIT <A>=ALL
```

```
SENSOR_1    65.9 DEG
LOW SETPOINT ALARM
28-AUG-05   13:45:10

SENSOR_1    69.9 DEG
LOW SETPOINT EVENT
28-AUG-05   13:15:10

SENSOR_1    80.7 DEG
HIGH SETPOINT EVENT
28-AUG-05   12:45:10

  1=REFRESH TREND LOG
  2=VIEW A DIFFERENT SENSOR
  3=RETURN TO MAIN MENU

SELECT A NUMBER:_
```

A.4.5 View Input Status

For details on this feature, see **5.5 - View Input Status**.

View Input & Sensor Status

```
 INPUT & SENSOR STATUS

Sensor values & discrete inputs status

 INPUT    STATUS

SENSOR_1    80.0 DEG
SENSOR_2  ------ DEG
SENSOR_3    80.0 DEG
SENSOR_4    79.5 RH
DEVICE_1  NORMAL
DEVICE_2  ALARM
DEVICE_3  EVENT
DEVICE_4  ALARM
DEVICE_5  ALARM
DEVICE_6  EVENT
DEVICE_7  NORMAL
DEVICE_8  NORMAL

<ENTER>=MORE <ESC>=EXIT <A>=ALL
```

```
  1=VIEW SENSOR_1 DYNAMICALLY
  2=VIEW SENSOR_2 DYNAMICALLY
  3=VIEW SENSOR_3 DYNAMICALLY
  4=VIEW SENSOR_4 DYNAMICALLY
  5=REFRESH INPUT & SENSOR STATUS
  6=RETURN TO MAIN MENU

SELECT A NUMBER:1
```

```
 VIEW SENSOR_1 DYNAMICALLY

  SENSOR_1    80.0 DEG


PRESS <ESC> KEY TO EXIT
```

A.4.6 View Output Status

For details on this feature, see **5.6 - View Output Status**.

View Output Status

```
    OUTPUT STATUS

Output status to device


 OUTPUT    STATE    MODE       ZONE   ****************************************
                                       OPERATING   = OPERATING/ON
DEVICE_1    ON    OPERATING      1     STANDBY     = IN STANDBY MODE
DEVICE_2    ON    OPERATING      1     ALARM       = IN ALARM
DEVICE_3    ON    OPERATING      1     FORCE ON    = FORCE ON BY OPERATOR
DEVICE_4    OFF   STANDBY        1     FORCE OFF   = FORCE OFF BY OPERATOR
DEVICE_5    OFF   NOT USED       0     HW FORCE ON = FORCE ON BY HARDWARE SWITCH
DEVICE_6    OFF   NOT USED       0     PENDING     = PENDING DELAY TIMER
DEVICE_7    OFF   NOT USED       0     NOT USED    = DEVICE NOT USED
DEVICE_8    OFF   NOT USED       0     ****************************************

  1=REFRESH OUTPUT STATUS
  2=RETURN TO MAIN MENU


SELECT A NUMBER:_
```

A.4.7 View Pager Numbers

For details on this feature, see **5.7 - View Pager Numbers**.

View Pager Numbers

```
  PAGER & PIN NUMBERS

    Numbers to dial
     for an alarm


PAGER 1 NUMBER
A1,8005551212

PAGER 1 PIN
01234567891011121314

PAGER 2 NUMBER
A9W1,8005551212

PAGER 2 PIN
01234567891011121314


<ENTER>=MORE <ESC>=EXIT <A>=ALL
```

```
PAGER 3 NUMBER
N18005551212,,,,1234567#

PAGER 3 PIN


PAGER 4 NUMBER
M1,8005551212

PAGER 4 PIN


  1=REFRESH PAGER & PIN NUMBERS
  2=RETURN TO MAIN MENU

SELECT A NUMBER:_
```

A.4.8 View Operation

For details on this feature, see **5.8 - View Operation**.

View Operation

```
   OPERATION STATUS

 Autosequencing and Standby Testing


  1=ZONE 1
  2=ZONE 2
  3=ZONE 3
  4=ZONE 4
  5=RETURN TO MAIN MENU

SELECT A NUMBER:1
```

```
     ZONE 1

AUTO SEQUENCING ON
 DAY 01 OF 02 (08:55)
STANDBY TESTING ON
 DAY 00 OF 03 (00:00)
STAGING ON
 CURRENT VALUE   73.8 DEG
 SET VALUE    +0070.0 DEG
 SENSITIVITY   +005.0 DEG


  1=VIEW A DIFFERENT ZONE
  2=RETURN TO MAIN MENU

SELECT A NUMBER:_
```

A.4.9 View Control Status

For details on this feature, see **5.9 - View Control Status**.

View Control Status

```
 CONTROL STATUS


 RELAY    STATUS

RELAY 1   OFF
RELAY 2   OFF

  1=REFRESH CONTROL STATUS
  2=RETURN TO MAIN MENU


SELECT A NUMBER:_
```

A.5 SILENCE ALARM & BACK UP LOG FILES *(SERVICE TERMINAL INTERFACE ONLY)*

This section presents two options from the Main Menu that are available via the Service Terminal Interface only.

Main Menu

After connecting to the Service Terminal Interface, the Main Menu appears, as shown below. This section presents Service Terminal Interface screens for options 8 and 9:

Main Menu

```
        LIEBERT AC8

        VX.XXX.X
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   ALL RIGHTS RESERVED

        MAIN MENU


   1=VIEW ACTIVE ALARMS

   2=VIEW ALARM LOG

   3=VIEW EVENT LOG

   4=VIEW TREND LOG

   5=VIEW INPUT & SENSOR STATUS

   6=VIEW OUTPUT STATUS

   7=VIEW PAGER NUMBERS

   8=SILENCE ALARM

   9=BACKUP LOG FILES

   A=VIEW OPERATION STATUS

   B=VIEW CONTROL RELAYS STATUS

   0=SETUP SYSTEM - LOGIN REQUIRED

SELECT A NUMBER:1
```

For sample screens, see:

Section A.5.1

Section A.5.2

A.5.1 Silence Alarm *(Service Terminal Interface only)*

For details on this feature, see **6.1 - Silence Alarm (Service Terminal Interface)**.

Silence Alarm

```
     SILENCE ALARM

  Silence alarm and reset
  common alarm relay if
  common alarm relay is
  configured to reset with
  silence alarm

   1=SILENCE ALARM
   2=RETURN TO MAIN MENU

 SELECT A NUMBER:1
-------------------------------

>ALARM HAS BEEN SILENCED
```

A.5.2 Back Up Log Files *(Service Terminal Interface only)*

For details on this feature, see **6.2 - Back Up Log Files (Service Terminal Interface only)**.

Back Up Alarm Log File

Backup Log Files - Alarm Log File

```
        BACKUP LOG FILES

  Backup alarm, event and trend log files


   1=BACKUP ALARM LOG FILE
   2=BACKUP EVENT LOG FILE
   3=BACKUP TREND LOG FILE-SENSOR_1
   4=BACKUP TREND LOG FILE-SENSOR_2
   5=BACKUP TREND LOG FILE-SENSOR_3
   6=BACKUP TREND LOG FILE-SENSOR_4
   7=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
>INITIATE A BACKUP OF ALARM LOG-YES(Y) OR NO(N)?
>[N]
>[


INSTRUCTIONS TO PERFORM BACKUP:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME, E.G., ALARM.LOG

>BACKUP SUCCESSFUL
```

Back Up Event Log File

Backup Log Files - Event Log File

```
        BACKUP LOG FILES

  Backup alarm, event and trend log files


   1=BACKUP ALARM LOG FILE
   2=BACKUP EVENT LOG FILE
   3=BACKUP TREND LOG FILE-SENSOR_1
   4=BACKUP TREND LOG FILE-SENSOR_2
   5=BACKUP TREND LOG FILE-SENSOR_3
   6=BACKUP TREND LOG FILE-SENSOR_4
   7=RETURN TO MAIN MENU

 SELECT A NUMBER:2
```

```
>INITIATE A BACKUP OF EVENT LOG-YES(Y) OR NO(N)?
>[N]
>[


INSTRUCTIONS TO PERFORM BACKUP:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME, E.G., EVENT.LOG

>BACKUP SUCCESSFUL
```

Back Up Trend Log Files

Backup Log Files - Trend Log Files

```
        BACKUP LOG FILES

  Backup alarm, event and trend log files


   1=BACKUP ALARM LOG FILE
   2=BACKUP EVENT LOG FILE
   3=BACKUP TREND LOG FILE-SENSOR_1
   4=BACKUP TREND LOG FILE-SENSOR_2
   5=BACKUP TREND LOG FILE-SENSOR_3
   6=BACKUP TREND LOG FILE-SENSOR_4
   7=RETURN TO MAIN MENU

 SELECT A NUMBER:3
```

```
>INITIATE A BACKUP OF TREND LOG-YES(Y) OR NO(N)?
>[N]
>[


INSTRUCTIONS TO PERFORM BACKUP:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME, E.G., SENSOR_1.LOG

>BACKUP SUCCESSFUL
```

A.6 SETUP MENU

The Setup menu allows the user to configure the AC8—setting up inputs and outputs and an input/output matrix to trigger actions, the modem and pagers, and system features such as date and time. This menu also provides a vehicle for manually changing the state of an output to ON or OFF, clearing active alarms and deleting records from the AC8's alarm log, event log and trend logs.

Main Menu

After you connect to the Service Terminal Interface, the Main Menu appears, as shown below.

Main Menu

```
        LIEBERT AC8

        VX.XXX.X
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   ALL RIGHTS RESERVED

        MAIN MENU


   1=VIEW ACTIVE ALARMS
   2=VIEW ALARM LOG
   3=VIEW EVENT LOG
   4=VIEW TREND LOG
   5=VIEW INPUT & SENSOR STATUS
   6=VIEW OUTPUT STATUS
   7=VIEW PAGER NUMBERS
   8=SILENCE ALARM
   9=BACKUP LOG FILES
   A=VIEW OPERATION STATUS
   B=VIEW CONTROL RELAYS STATUS
   0=SETUP SYSTEM - LOGIN REQUIRED

SELECT A NUMBER:0
```

- Choose 0 to access the features illustrated in this section.

Login Menu

The System and Control options require a password to prevent unauthorized users from making changes to the system. After you enter 0 in the Main Menu above, the Login Menu appears:

Login

```
  YOU MUST LOGIN TO PERFORM
  SETUP OR TO MAKE CHANGES


  LOGIN WITH 4 CHARACTER
  PASSWORD

>****

>INVALID PASSWORD, ENTER AGAIN
>PRESS <ESC> TO EXIT

>
```

- Enter the password, and the Setup Menu appears, as shown in the following section.

Setup Menu

This section presents Service Terminal Interface screens for each of the following:

Setup Menu

```
      SETUP MENU

  1=SETUP INPUT
  2=SETUP COMMON ALARM
  3=SETUP SENSOR
  4=SETUP ZONES
  5=SETUP OUTPUTS
  6=SETUP MODEM&PAGERS
  7=SETUP SYSTEM INFORMATION*
  8=SETUP OPERATION
  9=OVERRIDE OUTPUT
  0=CLEAR ALARMS&LOGS
  A=SETUP I/O MATRIX

  I=RETURN TO MAIN MENU

SELECT A NUMBER:_
```

See:	*Description*
Section A.6.1	Configure digital inputs
Section A.6.2	Set up the common alarm to reset with silence
Section A.6.3	Configure analog inputs
Section A.6.4	Assign devices to separate areas
Section A.6.5	Configure digital outputs
Section A.6.6	Configure modem and up to four pager numbers
Section A.6.7	Set up features such as password and date & time*
Section A.6.8	Specify rotation sequence, standby testing, staging
Section A.6.9	Manually override automatic control of outputs
Section A.6.10	Clear active alarms; clear alarm, event & trend logs
Section A.6.11	Specify inputs to trigger actions in control relays

* Setup System Information features are:

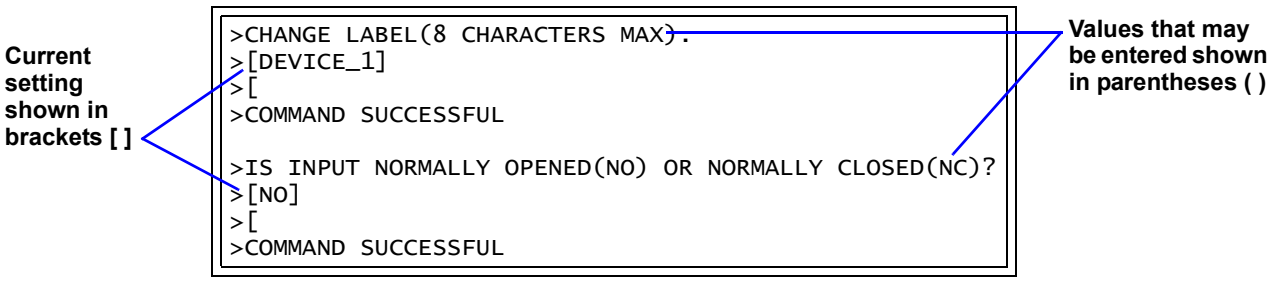
- **Change Password**
- **Set Date & Time/Automatic Daylight Saving Time**
- **Setup Site ID**
- **Connect Battery**
- **Backup and Upload Configuration File (Service Terminal Interface only)**
- **Setup Service Phone Number**
- **Factory Defaults**
- **Firmware Update (Service Terminal Interface only)**
- **Initiate Remote Alarm Test (Service Terminal Interface only)**

Note that three of these system features—**Backup and Upload Configuration File**, **Firmware Update** and **Initiate Remote Alarm Test**—are unique to the Service Terminal Interface.

Tips on Using the Service Terminal Interface

Use the following tips when making changes in the Service Terminal Interface:

- Data that can be entered is shown in parentheses ( ) in prompt line.
- The current setting is shown in brackets [ ] in the line below the prompt
  - To accept the current setting, press the Enter key.
  - To change the current setting, enter the value and then press Enter.
- Pressing Escape will exit the current setup function or take you to the previous menu screen.



A.6.1 Setup Inputs

For details on this feature, see **7.3 - Setup System - Setup Inputs**.

Setup Inputs

```
      SETUP INPUTS

   Setup input of device


   Select input to edit

      INPUT    DEFINITION        ****************************
                                 NO=NORMALLY OPENED
   1=DEVICE_1  NO-EV-NL-00:01    NC=NORMALLY CLOSED
   2=DEVICE_2  NO-AL-L -00:01
   3=DEVICE_3  NC-EV-NL-00:01    EV=EVENT
   4=DEVICE_4  NO-AL-L -00:01    AL=ALARMABLE
   5=DEVICE_5  NC-AL-L -00:01
   6=DEVICE_6  NO-EV-NL-00:01    NL=NOT LATCHED
   7=DEVICE_7  NO-AL-L -00:01    L =LATCHED
   8=DEVICE_8  NC-EV-NL-00:01
   9=RETURN TO SETUP MENU        MIN:SEC=DELAY TIME BEFORE
   0=RETURN TO MAIN MENU                 INPUT WILL TRIGGER

                                 NOTE:EVENT CANNOT BE LATCHED
                                 ****************************
 SELECT A NUMBER:1
-------------------------------------------------------------

>CHANGE LABEL(8 CHARACTERS MAX).
>[DEVICE_1]
>[]

>IS INPUT NORMALLY OPENED(NO) OR NORMALLY CLOSED(NC)?
>[NO]
>[]

>IS INPUT AN ALARM(AL) OR EVENT(EV)?
>[EV]
>[]

>IS ALARM LATCHED-YES(Y) OR NO(N)?
>[N]
>[]
-------------------------------------------------------------

>DELAY TIME BEFORE TRIGGER (MM:SS)?
>[00:01]
>[]
```

A.6.2 Setup Common Alarm

For details on this feature, see **7.4 - Setup System - Setup Common Alarm**.

Setup Common Alarm

```
   SETUP COMMON ALARM

  Select if the common
  alarm relay contact
  is to reset with
  silence alarm                CURRENT
                               SETTING

   1=SETUP COMMON ALARM           N
   2=RETURN TO SETUP MENU
   3=RETURN TO MAIN MENU

 SELECT A NUMBER:1
-------------------------------------------------------------

>RESET COMMON ALARM WITH SILENCE-YES(Y) OR NO(N)?
>[N]
>[
```

A.6.3 Setup Sensor

For details on this feature, see **7.5 - Setup System - Setup Sensor**.

Setup Sensor

```
      SETUP SENSOR

    Setup for analog
      input points

   Select sensor to edit

      SENSOR      VALUE

   1=SENSOR_1    80.0 DEG
   2=SENSOR_2  ------ DEG
   3=SENSOR_3    80.0 DEG
   4=SENSOR_4    79.5 RH
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
>IS THE SENSOR CONNECTED-YES(Y) OR NO(N)?
>[N]
>[]

>CHANGE SENSOR LABEL(8 CHARACTERS MAX).
>[SENSOR_1]
>[]

>CHANGE UNITS LABEL(3 CHARACTERS MAX).
>[DEG]
>[]

>CHANGE 4 mA VALUE(+045.0 TO +096.0).
>[+045.0]
>[]

>CHANGE 20 mA VALUE(+045.0 TO +096.0).
>[+096.0]
>[]
```

```
>CHANGE OFFSET VALUE(-999.9 TO +999.9).
>[+000.0]
>[]

>IS SENSOR AN ALARM(AL) OR EVENT(EV)?
>[AL]
>[]

>IS SENSOR ALARM LATCHED-YES(Y) OR NO(N)?
>[Y]
>[]

>CHANGE LOW SETPOINT.
>[-0015.0]
>[]
```

```
>CHANGE HIGH SETPOINT.
>[+0015.0]
>[]

>DELAY TIME BEFORE TRIGGER (MM:SS)?
>[00:01]
>[]
```

A.6.4 Setup Zones

For details on this feature, see **7.6 - Setup System - Setup Zones**.

Setup Zones

```
      SETUP ZONES

  Select zones and number
    of devices in the zone

     ZONES   # DEVICES

   1=ZONE 1      4
   2=ZONE 2      0
   3=ZONE 3      0
   4=ZONE 4      0
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:
```

```
>
># DEVICES IN ZONE 1
>[4]
>[
```

A.6.5 Setup Output

For details on this feature, see **7.7 - Setup System - Setup Outputs**.

Setup Outputs

```
      SETUP OUTPUTS

   Setup output of device


   Select output to edit

     OUTPUT    DEFINITION          ****************************************
                                   NO=NORMALLY OPENED
   1=DEVICE_1  NO-OP-E-E           NC=NORMALLY CLOSED
   2=DEVICE_2  NO-OP-E-E
   3=DEVICE_3  NO-OP-E-E           OP=OPERATING/ON
   4=DEVICE_4  NO-ST-E-E           ST=STANDBY MODE
   5=DEVICE_5  NO-NU-E-E           NU=NOT USED
   6=DEVICE_6  NO-NU-E-E
   7=DEVICE_7  NO-NU-E-E           D=DISABLE DEVICE ON ALARM CONDITION
   8=DEVICE_8  NO-NU-E-E           E=LEAVE DEVICE OPERATING ON ALARM CONDITION
   9=RETURN TO SETUP MENU
   0=RETURN TO MAIN MENU           D=DISABLE DEVICE IN EMERGENCY POWER OP
                                   E=LEAVE DEVICE OPERATING (EMERGENCY POWER OP)
                                   ****************************************
 SELECT A NUMBER:1
```

```
>SET TO NORMALLY OPENED(NO) OR NORMALLY CLOSED(NC)
>[NO]
>[]

>DEVICE_1 TO OPERATING/ON(OP), STANDBY MODE(ST), NOT USED(NU)
>[OP]
>[]

>DEVICE_1 TO ENABLE(E) OR DISABLE(D) DEVICE ON ALARM
>[E]
>[]

>DEVICE_1 TO ENABLE(E) OR DISABLE(D) DEVICE IN EMERGENCY POWER OP
>[E]
>[
```

A.6.6 Setup Modem & Pagers

For details on this topic, see **7.8 - Setup System - Setup Modem & Pagers**.

Pager Setup

For details on this feature, see **7.8.3 - Pager Setup - Pager Number and PIN** and **7.8.4 - Pager Setup - Communications Check (Service Terminal Interface only)**.

Setup Modem & Pagers - Pager Setup

```
  SETUP MODEM&PAGERS

    Input pager and
    modem information

  Select pager or modem
                                  CURRENT NUMBER
                                                          ********************
   1=PAGER NUMBER 1                                       An "A" is required
   2=PAGER NUMBER 2                                       as 1st character
   3=PAGER NUMBER 3                                       for an alpha pager,
   4=PAGER NUMBER 4                                       an "N" for a numeric
   5=MODEM CONFIGURATION                                  pager, and an "M"
   6=RETURN TO SETUP MENU                                 for a remote modem.
   7=RETURN TO MAIN MENU                                  ********************

 SELECT A NUMBER:1
```

```
>ENTER PAGER NUMBER(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL

>ENTER PAGER PIN NUMBER (20 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL

>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)? (Service Terminal Interface only)
>[N]
>[
>COMMAND SUCCESSFUL

>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM). (Service Terminal Interface only)
>[00:00]
>[
>COMMAND SUCCESSFUL
```

Modem Setup

For details on this feature, see **7.8.1 - Modem Setup - Initialization String** and **7.8.2 - Modem Setup - Additional Features (Service Terminal Interface only)**.

Setup Modem & Pagers - Modem Setup

```
  SETUP MODEM&PAGERS

    Input pager and
    modem information

  Select pager or modem
                                CURRENT NUMBER
                                                        ******************
   1=PAGER NUMBER 1                                     An "A" is required
   2=PAGER NUMBER 2                                     as 1st character
   3=PAGER NUMBER 3                                     for an alpha pager,
   4=PAGER NUMBER 4                                     an "N" for a numeric
   5=MODEM CONFIGURATION                                pager, and an "M"
   6=RETURN TO SETUP MENU                               for a remote modem.
   7=RETURN TO MAIN MENU                                ******************

 SELECT A NUMBER:5
```

```
>CHANGE MODEM INITIALIZATION STRING(40 CHARACTERS MAX).
>[ATS0=1]
>[
>COMMAND SUCCESSFUL

>ENTER AC8 PHONE NUMBER(40 CHARACTERS MAX). (Service Terminal Interface only)
>[]
>[
>COMMAND SUCCESSFUL

>ENABLE MODEM DIAGNOSTIC MESSAGES-YES(Y) OR NO(N)? (Service Terminal Interface only)
>[N]
>[
>COMMAND SUCCESSFUL

>CHANGE MODEM DIAL PREFIX. (Service Terminal Interface only)
>[ATE0X4DT]
>[
>COMMAND SUCCESSFUL
```

```
>CHANGE MODEM HANG UP DELAY AFTER A CALL(99 SEC MAX). (Service Terminal Interface only)
>[10]
>[
>COMMAND SUCCESSFUL
```

A.6.7 Setup System Info

This section presents Service Terminal Interface screens for choices 1 through 9 in the Setup System Information menu shown below. For details on this topic, see **7.9 - Setup System - Setup System Info**.

Setup System Info

```
  SETUP SYSTEM INFORMATION



   1=CHANGE PASSWORD
   2=SET DATE & TIME
   3=SETUP SITE ID
   4=CONNECT BATTERY
   5=BACKUP & UPLOAD CONFIGURATION FILE
   6=SETUP SERVICE PHONE NUMBER
   7=SET PANEL TO FACTORY DEFAULTS
   8=PERFORM FIRMWARE UPDATE
   9=INITIATE REMOTE ALARM TEST
   0=RETURN TO SETUP MENU
   I=RETURN TO MAIN MENU

 SELECT A NUMBER:_
```

Change Password

For details on this feature, see **7.9.1 - Change Password**.

Change Password

```
      CHANGE PASSWORD


   1=CHANGE PASSWORD
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

SELECT A NUMBER:1

>ENTER ORIGINAL PASSWORD(MUST BE 4 CHARACTERS).
>[****]

>ENTER NEW PASSWORD(MUST BE 4 CHARACTERS).
>[****]

>ENTER NEW PASSWORD AGAIN FOR CONFIRMATION.
>[****]

>PASSWORD CHANGE SUCCESSFUL
```

Set Date & Time/Automatic Daylight Saving Time

For details on this feature, see **7.9.2 - Change Date & Time/Automatic Daylight Saving Time**.

Set Date & Time

```
     SET DATE & TIME
                                          CURRENT DATE & TIME   DST
                                          28-AUG-05   14:45:10   Y
   1=SET DATE & TIME
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1

>SET DATE & TIME(DD-MON-YY HR:MM:SS).
>[28-AUG-05 14:45:10]
>[
>COMMAND SUCCESSFUL

>ENABLE DAYLIGHT SAVINGS TIME-YES(Y) OR NO(N)?
>[Y]
>[
>COMMAND SUCCESSFUL
```

Setup Site ID

For details on this feature, see **7.9.3 - Setup Site ID**.

Setup Site ID

```
   SETUP SITE ID

  Define name to
  reference panel
                                          CURRENT SITE ID

   1=SETUP SITE ID
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1

>ENTER SITE ID NAME(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL
```

Connect Battery

For details on this feature, see **7.9.4 - Connect Battery**.

Connect Battery

```
   CONNECT BATTERY
                                          CURRENT SETTING
                                               Y
   1=CONNECT BATTERY
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1

>IS THE BATTERY CONNECTED-YES(Y) OR NO(N)?
>[Y]
>[
>COMMAND SUCCESSFUL
```

Backup and Upload Configuration File *(Service Terminal Interface only)*

For details on this feature, see **7.9.5 - Backup and Upload Configuration File (Service Terminal Interface only)**.

Backup & Upload Configuration File - Backup

```
  BACKUP & UPLOAD CONFIGURATION FILE

  Backup from panel saves panel configurations
  Upload to panel restores panel configurations


   Select to backup or upload file


  1=BACKUP CONFIGURATION FILE
  2=UPLOAD CONFIGURATION FILE
  3=RETURN TO SETUP SYSTEM INFO MENU
  4=RETURN TO SETUP MENU
  5=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
>INITIATE A BACKUP OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[


INSTRUCTIONS TO PERFORM BACKUP:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT RECEIVE FILE
- ENTER FOLDER WHERE FILE IS TO BE RECEIVED
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT RECEIVE BUTTON AND ENTER FILE NAME,E.G., AC8_CONF.SAV

>BACKUP SUCCESSFUL
```

Backup & Upload Configuration File - Upload

```
  BACKUP & UPLOAD CONFIGURATION FILE

  Backup from panel saves panel configurations
  Upload to panel restores panel configurations


  Select to backup or upload file


   1=BACKUP CONFIGURATION FILE
   2=UPLOAD CONFIGURATION FILE
   3=RETURN TO SETUP SYSTEM INFO MENU
   4=RETURN TO SETUP MENU
   5=RETURN TO MAIN MENU

 SELECT A NUMBER:2
```

```
>INITIATE AN UPLOAD OF CONFIGURATION FILE-YES(Y) OR NO(N)?
>[N]
>[

INSTRUCTIONS TO PERFORM UPLOAD:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT SEND FILE
- ENTER FILE NAME-CONFIGURATION FILE LOCATION & NAME,E.G., AC8_CONF.SAV
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT SEND BUTTON

>UPLOAD SUCCESSFUL
```

Setup Service Phone Number

For details on this feature, see **7.9.6 - Setup Serv Ph Num - Enter Phone Number** and **7.9.7 - Setup Serv Ph Num - Communications Check (Service Terminal Interface only)**.

Setup Service Phone Number

```
    SETUP SERVICE PHONE NUMBER

  This number receives all alarms
  in addition to the 4 pagers
                                          CURRENT NUMBER

   1=SETUP SERVICE PHONE NUMBER
   2=RETURN TO SETUP SYSTEM INFO MENU                    ******************
   3=RETURN TO SETUP MENU                                An "M" is required
   4=RETURN TO MAIN MENU                                 as 1st character.
                                                         ******************

 SELECT A NUMBER:1
```

```
>ENTER SERVICE PHONE NUMBER(40 CHARACTERS MAX).
>[]
>[
>COMMAND SUCCESSFUL

>ENABLE COMMUNICATIONS CHECK-YES(Y) OR NO(N)? (Service Terminal Interface only)
>[N]
>
>COMMAND SUCCESSFUL
>ENTER TIME TO PERFORM COMMUNICATIONS CHECK(HH:MM). (Service Terminal Interface only)
>[00:00]
>[
>COMMAND SUCCESSFUL
```

Factory Defaults

For details on this feature, see **7.9.8 - Factory Defaults**.

Factory Defaults

```
    RESTORE FACTORY DEFAULTS

  This command restores all panel
  information to factory settings


   1=RESTORE FACTORY DEFAULTS
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1

>RESTORE THE PANEL TO FACTORY SETTINGS-YES(Y) OR NO(N)?
>[N]
[[
>COMMAND SUCCESSFUL
```

Firmware Update *(Service Terminal Interface only)*

For details on this feature, see **7.9.9 - Perform Firmware Update (Service Terminal Interface only)**.

Firmware Update

```
   PERFORM FIRMWARE UPDATE

  This command will update
  the existing firmware


   1=PERFORM FIRMWARE UPDATE
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
>PERFORM FIRMWARE UPDATE-YES(Y) OR NO(N)?
>[N]
>[

INSTRUCTIONS TO PERFORM FIRMWARE UPDATE:
ASSUMES USING MICROSOFT WINDOWS HYPERTERMINAL APPLICATION
- SELECT TRANSFER FROM THE TOOLBAR
- SELECT SEND FILE
- ENTER FILE NAME-FIRMWARE FILE LOCATION & NAME
- SELECT XMODEM FROM THE PROTOCOL BOX
- SELECT SEND BUTTON

>WAITING TO SEND PROGRAM FILE
>DONE

>CHECKSUM IS....
>PROGRAM VERSION....
>WAITING TO SEND FLASH FILE
>DONE

>FIRMWARE UPDATE SUCCESSFUL
```

Initiate Remote Alarm Test *(Service Terminal Interface only)*

For details on this feature, see **7.9.10 - Initiate Remote Alarm Test (Service Terminal Interface only)**.

Initiate Remote Alarm Test

```
    INITIATE REMOTE ALARM TEST

  This command simulates an alarm
  to test alarm notification
  for the service phone number


   1=INITIATE REMOTE ALARM TEST
   2=RETURN TO SETUP SYSTEM INFO MENU
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1

>SIMULATE AN ALARM CONDITION-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

A.6.8 Setup Operation

For details on this feature, see **7.10 - Setup Operation**.

Auto Sequencing

For details on this feature, see **7.10.1 - Turn Automatic Sequencing On or Off**.

Setup Operation - Auto Sequencing

```
    SETUP OPERATION BY ZONE

   Select the zone for which
     operation is to change

     ZONE

   1=ZONE 1
   2=ZONE 2
   3=ZONE 3
   4=ZONE 4
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
      SETUP OPERATION


   Select operation to edit
       for zone 1

   OPERATION          STATE

   1=AUTO SEQUENCING  OFF
   2=STANDBY TESTING  OFF
   3=FAILED STANDBY   N
   4=HOLD DELAY       10:00
   5=RESTART DELAY    00:06
   6=STAGING          OFF
   7=RETURN TO SETUP MENU
   8=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
>AUTO SEQUENCING-TYPE N FOR ON, F FOR OFF
>[N]
>[N]
>COMMAND SUCCESSFUL

>EVERY ## DAYS (.5 FOR 12 HOUR)
>[03] DAYS
>[03]
>COMMAND SUCCESSFUL

>AT
>[00:00]
>[00:00]
>COMMAND SUCCESSFUL
```

Standby Testing

For details on this feature, see **7.10.2 - Turn Standby Testing On or Off**.

Setup Operation - Standby Testing

```
    SETUP OPERATION BY ZONE

   Select the zone for which
     operation is to change

     ZONE

   1=ZONE 1
   2=ZONE 2
   3=ZONE 3
   4=ZONE 4
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
      SETUP OPERATION


   Select operation to edit
       for zone 1

   OPERATION          STATE

   1=AUTO SEQUENCING  OFF
   2=STANDBY TESTING  OFF
   3=FAILED STANDBY   N
   4=HOLD DELAY       10:00
   5=RESTART DELAY    00:06
   6=STAGING          OFF
   7=RETURN TO SETUP MENU
   8=RETURN TO MAIN MENU

 SELECT A NUMBER:2
```

```
>STANDBY TESTING-TYPE N FOR ON, F FOR OFF
>[N]
>[N]
>COMMAND SUCCESSFUL

>EVERY ## DAYS
>[03] DAYS
>[03]
>COMMAND SUCCESSFUL

>AT
>[00:00]
>[00:00]
>COMMAND SUCCESSFUL

>FOR
>[10] MIN
>[10]
>COMMAND SUCCESSFUL
```

Failed Standby

For details on this feature, see **7.10.3 - Specify Failed Standby Response**.

Setup Operation - Failed Standby

```
    SETUP OPERATION BY ZONE

   Select the zone for which
     operation is to change

     ZONE

   1=ZONE 1
   2=ZONE 2
   3=ZONE 3
   4=ZONE 4
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
      SETUP OPERATION


   Select operation to edit
       for zone 1

   OPERATION          STATE

   1=AUTO SEQUENCING  OFF
   2=STANDBY TESTING  OFF
   3=FAILED STANDBY   N
   4=HOLD DELAY       10:00
   5=RESTART DELAY    00:06
   6=STAGING          OFF
   7=RETURN TO SETUP MENU
   8=RETURN TO MAIN MENU

 SELECT A NUMBER:3
```

```
>IF FAILED STANDBY,IN SAME FAILED ZONE, ENABLE A DISABLED UNIT-YES(Y) OR NO(N)?
>[N]
>[Y]
>COMMAND SUCCESSFUL
```

Hold Delay

For details on this feature, see **7.10.4 - Specify Hold Delay Time**.

Setup Operation - Hold Delay

```
    SETUP OPERATION BY ZONE

   Select the zone for which
     operation is to change

     ZONE

   1=ZONE 1
   2=ZONE 2
   3=ZONE 3
   4=ZONE 4
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
      SETUP OPERATION


   Select operation to edit
       for zone 1

   OPERATION          STATE

   1=AUTO SEQUENCING  OFF
   2=STANDBY TESTING  OFF
   3=FAILED STANDBY   N
   4=HOLD DELAY       10:00
   5=RESTART DELAY    00:06
   6=STAGING          OFF
   7=RETURN TO SETUP MENU
   8=RETURN TO MAIN MENU

 SELECT A NUMBER:4
```

```
>HOLD DELAY (MM:SS)
>[10:00]
>[10:00]
>COMMAND SUCCESSFUL
```

Restart Delay

For details on this feature, see **7.10.5 - Specify Restart Time**.

Setup Operation - Restart Delay

```
    SETUP OPERATION BY ZONE

   Select the zone for which
     operation is to change

     ZONE

   1=ZONE 1
   2=ZONE 2
   3=ZONE 3
   4=ZONE 4
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
      SETUP OPERATION


   Select operation to edit
       for zone 1

   OPERATION          STATE

   1=AUTO SEQUENCING  OFF
   2=STANDBY TESTING  OFF
   3=FAILED STANDBY   N
   4=HOLD DELAY       10:00
   5=RESTART DELAY    00:06
   6=STAGING          OFF
   7=RETURN TO SETUP MENU
   8=RETURN TO MAIN MENU

 SELECT A NUMBER:5
```

```
>DELAY BEFORE STARTUP UNIT(MM:SS)?
>[00:06]
>[
>COMMAND SUCCESSFUL
```

Staging

For details on this feature, see **7.10.6 - Specify Staging**.

Setup Operation - Staging

```
    SETUP OPERATION BY ZONE

   Select the zone for which
     operation is to change

     ZONE

   1=ZONE 1
   2=ZONE 2
   3=ZONE 3
   4=ZONE 4
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
      SETUP OPERATION


   Select operation to edit
       for zone 1

   OPERATION          STATE

   1=AUTO SEQUENCING  OFF
   2=STANDBY TESTING  OFF
   3=FAILED STANDBY   N
   4=HOLD DELAY       10:00
   5=RESTART DELAY    00:06
   6=STAGING          OFF
   7=RETURN TO SETUP MENU
   8=RETURN TO MAIN MENU

 SELECT A NUMBER:6
```

```
>STAGING FOR ZONE 1-TYPE N FOR ON, F FOR OFF
>[F]
>[N]

>TARGET VALUE(+045.0 TO +096.0).
>[+0070.0]
>[]

>SENSITIVITY.
>[+005.0]
>[]
>COMMAND SUCCESSFUL
```

A.6.9 Override Output

For details on this feature, see **7.12 - Override Output**.

Override Output

```
    OVERRIDE OUTPUT

   Manually override
    an output

   Select output to override

     OUTPUT      CONTROL

   1=DEVICE_1     AUTO          ******************************************
   2=DEVICE_2     AUTO          AUTO   = CONTROL BY PANEL
   3=DEVICE_3     AUTO          FORCE ON = FORCE ON BY OPERATOR
   4=DEVICE_4     AUTO          FORCE OFF= FORCE OFF BY OPERATOR
   5=DEVICE_5     AUTO
   6=DEVICE_6     AUTO
   7=DEVICE_7     AUTO
   8=DEVICE_8     AUTO
   9=RETURN TO SETUP MENU       ******************************************
   0=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
>OVERRIDE OUTPUT DEVICE_1-AUTO(2),FORCE ON(1),FORCE OFF(0).
>[2]
>[
>COMMAND SUCCESSFUL
```

A.6.10 Clear Alarms & Logs

For details on this topic, see **7.13 - Clear Alarms & Logs**.

Clear Active Alarms

For details on this feature, see **7.13.1 - Clear Active Alarms**.

Clear Alarms & Logs - Clear Active Alarms

```
    CLEAR ALARMS&LOGS

    Clear active alarms
    or log records

 Select the log to clear


   1=CLEAR ACTIVE ALARMS
   2=CLEAR ALARM LOG
   3=CLEAR EVENT LOG
   4=CLEAR TREND LOGS
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:1
-------------------------------------------------------

>CLEAR ALL THE ACTIVE ALARMS-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

Clear the Alarm Log

For details on this feature, see **7.13.2 - Clear the Alarm Log**.

Clear Alarms & Logs - Clear the Alarm Log

```
    CLEAR ALARMS&LOGS

    Clear active alarms
    or log records

 Select the log to clear


   1=CLEAR ACTIVE ALARMS
   2=CLEAR ALARM LOG
   3=CLEAR EVENT LOG
   4=CLEAR TREND LOGS
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:2
-------------------------------------------------------

>CLEAR ALL RECORDS IN THE ALARM LOG-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

Clear the Event Log

For details on this feature, see **7.13.3 - Clear the Event Log**.

Clear Alarms & Logs - Clear the Event Log

```
    CLEAR ALARMS&LOGS

    Clear active alarms
    or log records

 Select the log to clear


   1=CLEAR ACTIVE ALARMS
   2=CLEAR ALARM LOG
   3=CLEAR EVENT LOG
   4=CLEAR TREND LOGS
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:3
```

```
>CLEAR ALL RECORDS IN THE EVENT LOG-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

Clear the Trend Logs

For details on this feature, see **7.13.4 - Clear the Trend Logs**.

Clear Alarms & Logs - Clear the Trend Logs

```
    CLEAR ALARMS&LOGS

    Clear active alarms
    or log records

 Select the log to clear


   1=CLEAR ACTIVE ALARMS
   2=CLEAR ALARM LOG
   3=CLEAR EVENT LOG
   4=CLEAR TREND LOGS
   5=RETURN TO SETUP MENU
   6=RETURN TO MAIN MENU

 SELECT A NUMBER:4
```

```
>CLEAR ALL RECORDS IN THE TREND LOGS-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

A.6.11 Setup I/O Matrix

For details on this feature, see **7.11 - Setup System - Setup I/O Matrix**.

Setup I-O Matrix - Map Input to Control Relay

```
     SETUP I/O MATRIX

  Program input & sensors
    to control relays

   Select to map inputs or sensors

   1=MAP INPUT TO CONTROL RELAY
   2=MAP SENSOR TO CONTROL RELAY
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
    MAP INPUT TO CONTROL RELAY
      Program input
    to control relays

   Select input to map


      INPUT     CONTROL RELAY
                1 2
   1=DEVICE_1   N N
   2=DEVICE_2   N N
   3=DEVICE_3   N N
   4=DEVICE_4   N N
   5=DEVICE_5   N N
   6=DEVICE_6   N N
   7=DEVICE_7   N N
   8=DEVICE_8   N N
   0=RETURN TO SETUP I/O MATRIX
   I=RETURN TO SETUP MENU

 SELECT A NUMBER:1
```

```
>MAP DEVICE_1 TO RELAY 1-YES(Y) OR NO(N)?
>[Y]
>[
>COMMAND SUCCESSFUL

>MAP DEVICE_1 TO RELAY 2-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

Setup I-O Matrix - Map Sensor to Control Relay

```
     SETUP I/O MATRIX

  Program input & sensors
    to control relays

   Select to map inputs or sensors

   1=MAP INPUT TO CONTROL RELAY
   2=MAP SENSOR TO CONTROL RELAY
   3=RETURN TO SETUP MENU
   4=RETURN TO MAIN MENU

 SELECT A NUMBER:1
```

```
    MAP SENSOR TO CONTROL RELAY
      Program sensor
    to control relays

   Select sensor to map


          SENSOR           CONTROL RELAY
                           1 2
   1=SENSOR_1 HIGH STPT    N N
   2=SENSOR_1 LOW  STPT    N N
   3=SENSOR_2 HIGH STPT    N N
   4=SENSOR_2 LOW  STPT    N N
   5=SENSOR_3 HIGH STPT    N N
   6=SENSOR_3 LOW  STPT    N N
   7=SENSOR_4 HIGH STPT    N N
   8=SENSOR_4 LOW  STPT    N N
   9=RETURN TO SETUP I/O MATRIX
   0=RETURN TO SETUP MENU

 SELECT A NUMBER:1
```

```
>MAP SENSOR_1 HIGH STPT TO RELAY 1-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL

>MAP SENSOR_1 HIGH STPT TO RELAY 2-YES(Y) OR NO(N)?
>[N]
>[
>COMMAND SUCCESSFUL
```

APPENDIX B - DEFAULT SETTINGS QUICK REFERENCE GUIDE

This appendix provides a quick reference to default settings for the AC8. These settings also appear throughout the manual.

Table 35 AC8 - default settings for inputs and outputs

DEFAULT SETTINGS - DIGITAL INPUTS (FROM Table 15)		
Feature	**Default**	**Other Options**
LABEL	**DEVICE_1** - **DEVICE_8**	Any name (up to eight characters)
NORM OPEN/CLOSE	**NO** (Normally open)	NC (Normally closed)
ALARM/EVENT	**AL** (Alarmable)	EV (Event)
LATCHED	**L** (Latched) / Y (Yes)*	NL (Unlatched) / N (No)*
DELAY	**00:01** (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59
* **NOTE:** Different abbreviations are used to designate a digital input as Latched (L/Y) or Unlatched (NL/N) in Select Input/Set Inputs screens.		
DEFAULT SETTINGS - ANALOG SENSOR INPUTS (FROM TABLE 17)		
Feature	**Default**	**Other Options**
CONNECTED*	**N** (Not connected)*	Y (Connected)**
LABEL	**SENSOR_1** - **SENSOR_4**	Any name (up to eight characters)
UNITS	**DEG**	Any units (up to three characters)
4 mA	**+045.0**	Can define up to two decimal places—e.g., -99.99
20 mA	**+096.0**	Can define up to two decimal places—e.g., +99.99
OFFSET	**+000.0**	Can define up to two decimal places—e.g., +00.00
ALARM/EVENT	**AL** (Alarmable)	EV (Event)
LATCHED	**N** (Unlatched)	Y (Latched)
LOW SETPT	**+0050.0**	Can define up to two decimal places—e.g., -999.99
HIGH SETPT	**+0090.0**	Can define up to two decimal places—e.g., +999.99
SENSOR DELAY	**00:01** (1 second)	Any time (in minutes and seconds) from 00:00 to 99:59
* If a sensor is configured as N (Not connected), the display will show an empty reading (blank spaces). ** If a sensor is configured as Y (Connected) and is functioning properly, the display will show a reading. If the connected sensor is not functioning properly, the display will show dashes (------) indicating a problem.		

DEFAULT MAPPINGS - DIGITAL INPUTS TO CONTROL RELAYS (FROM TABLE 30)			
Digital input	**Mapping to control relay:**	**Digital input**	**Mapping to control relay:**
Device_1	(none)	Device_5	(none)
Device_2	(none)	Device_6	(none)
Device_3	(none)	Device_7	(none)
Device_4	(none)	Device_8	(none)
DEFAULT MAPPINGS - ANALOG INPUTS TO CONTROL RELAYS (FROM TABLE 31)			
Analog input	**Mapping to control relay:**	**Analog input**	**Mapping to control relay:**
Sensor_1	(none)	Sensor_3	(none)
Sensor_2	(none)	Sensor_4	(none)

DEFAULT SETTINGS - DIGITAL OUTPUTS (FROM Table 19)		
Feature	**Default**	**Other Options**
NORM OPEN/CLOSE	**NO** (Normally open)	NC (Normally closed)
MODE*	Outputs 1-2: **OP** (Operating) Outputs 3-4: **ST** (Standby) Outputs 5-8: **NU** (Not Used)	OP (Operating) ST (Standby) NU (Not Used)
IN ALARM	**E** (Enable)	D (Disable)
EMERG OP	**E** (Enable)	D (Disable)

Table 36 AC8 - other default settings

DEFAULT SETTINGS - operation features (FROM Table 28)		
Feature	**Default**	**Other Options**
AUTO SEQUENCING	**OFF** (Deactivated)	ON (Activated), 12h (Activated for 12-hour intervals)
STANDBY TESTING	**OFF** (Deactivated)	ON (Activated)
FAILED STANDBY	**N** (Deactivated)	Y (Activated)
HOLD DELAY	**10:00** (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
RESTART	**00:06** (No delay)	Any time (in minutes and seconds) from 00:00 to 99:59
STAGING	**OFF** (Deactivated)	ON (Activated)
JUMPER SETTINGS		
Feature	**Default**	**Other Options**
Digital output loss-of-power jumpers	OFF - Normally Open	ON - Normally Closed
NOTE: The jumper position has no effect on the contact when the AC8 has power.		
12VDC/24VDC analog input jumper	24VDC	Acceptable voltage for all four two-wire analog sensors
422 TERM jumper	Default: jumpered (connected)	None—do NOT change factory default
485 TERM jumper	Default: jumpered (connected)	None—do NOT change factory default
EPOP jumper	Disabled	Enable to use the EPOP input
Audible horn	Enabled	May be disabled via the audible horn jumper
Manual Override switch	Off (outputs controlled by programming)	On (Turn on all output relays)
DEFAULT SETTINGS - MODEM (FROM Table 21)		
Feature	**Default**	**Other Options**
Initialization String (InitString)	**ATS0=1**	Any string (up to 40 characters); for international dialing, add **+GCI=xx**, where **xx** is the country code (except B5 countries—see **Table 22**)
Enable Modem Diagnostic Messages	**N** (disable)	Y (enable)
Modem Dial Prefix	**ATE0X4DT**	Any string
Modem Hang Up Delay After a Call	**10** seconds	Any number (up to 99 seconds)
DIP SWITCH SETTINGS		
Feature	**Default**	**Other Options**
8-position DIP switch	All are OFF (down)	May be used to reset password to factory default (see **9.9.1- Change Password**)
OTHER SETTINGS		
Feature	**Default**	**Other Options**
Change state of outputs - automatic or manual control	AUTO (automatic control)	Force an output ON / OFF via Manual Output Ctrl menu Force all outputs ON via hardware switch
Password	AAAA	Any 4 characters (see **Table 14** for valid characters)
Reset common alarm with silence	**N** (not reset)	Y (reset with silence)
Battery connected	**Y** (connected)	N (not connected)

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